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# FM 57-35

DEPARTMENT OF THE ARMY FIELD MANUAL

ARMY

TRANSPORT AVIATION

COMBAT OPERATIONS

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DEPARTMENT OF THE ARMY

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**ARMY TRANSPORT AVIATION—  
COMBAT OPERATIONS**

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# **CHAPTER 1**

## **GENERAL**

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### **Section I. INTRODUCTION**

#### **1. Purpose and Scope**

- a.* Army transport aircraft (fixed and rotary-wing) are authorized aviation units in the type field army to provide mobility for tactical units, and to expedite tactical movement of supplies and personnel in the forward areas of the combat zone.
- b.* This manual provides guidance for commanders, staff officers, and other interested personnel for planning and executing tactical operations supported by Army transport aircraft (fixed-and rotary-wing). The material presented is applicable to atomic warfare; where needed, appropriate modifying guidance for non-atomic warfare is integrated throughout the manual. The provisions in this manual do not rescind or change the existing doctrine, procedures, and command relationships for air movement of troops, supplies, and equipment in the assault and subsequent phases of joint airborne operations as set forth in Secretary of Defense Memorandum, 26 November 1956, nor does it alter the role of the Air Force in providing the Army with air transport support to and from points outside the combat zone, as set forth in Department of Defense Directive Number 5160.22, 18 March 1957.
- c.* This manual provides basic information concerning the administrative and tactical planning and conduct of Army operations employing Army transport aircraft from battle group down to and including small reconnaissance patrols. The stated principles and techniques are equally applicable to the airborne battle group, the armor division combat command, or elements of them. The manual deals primarily with the ground aspects of the operations covered; it describes the detailed planning and the execution of Army aviation transport operations involving the establishment of friendly troops behind enemy lines (vertical envelopment), and describes other methods of employing Army transport aviation for the movement of forces in various types of ground operations.

## **2. Explanations**

*a.* The airhead type of vertical envelopment by an infantry division battle group is used as a vehicle for discussion in this manual. The tactics and techniques described are applicable to all units and to all types of operations (ch. 6).

*b.* Army commanders at all echelons must remain cognizant of the fact that Army air-landed operations normally are limited to a depth of penetration within which weapons available to the Army are capable of dominating, for the duration of the air movement, the objective area and the air routes to it.

*c.* Army air-landed operations and joint air-landed operations are generally similar as to techniques of planning and coordination, but are dissimilar with respect to the size, scope, and range of operations. Thus, many of the terms used in this manual for Army air-landed operations are similar to those currently used in joint airborne (air-landed) operations. A glossary of terms applicable to Army air-landed operations appears at the end of this manual.

## **Section II. BASIC CONSIDERATIONS**

### **3. Characteristics of Army Air-Landed Operations**

*a.* Tactical operations of air-landed forces are similar to those of other ground combat forces, but differ in these respects:

- (1) Air-landed operations usually are executed in relatively undefended areas or after a preassault atomic or non-atomic preparation with the advantage of initial tactical surprise.
- (2) Air-landed forces can land directly on, or adjacent to, objectives.
- (3) Troops in air-landed operations are particularly vulnerable during landing and during assembly.
- (4) Air-landed forces can conduct simultaneous landings of tactical groups, organized, equipped, and ready for combat.
- (5) The types and amounts of heavy equipment that can be carried into the objective area are limited.
- (6) Air-landed forces have the characteristic ability to readily conduct operations in otherwise inaccessible areas.
- (7) The limited ground mobility and firepower in the objective area increase the vulnerability to enemy armor.
- (8) Air-landed forces rely to a greater extent on tactical air support.

(9) Adverse weather restricts air-landed forces more than other ground forces.

b. An air-landed operation is an airborne operation, since it consists of moving and delivering combat forces and their logistical support into an objective area by air to execute a tactical mission. An airborne operation may involve any combination of airborne units, air-transported units, and types of transport aircraft. Characteristic differences between Army air-landed operations and joint airborne operations (parachute) are—

- (1) Parachute troops require more specialized training and equipment.
- (2) Adverse weather affects helicopterborne operations less than other airborne operations.
- (3) The radius of action of a helicopterborne force is considerably less than that of other airborne forces.
- (4) The items of heavy equipment that can be transported in Army air-landed operations are more limited.
- (5) A helicopterborne force can land on terrain that normally is considered less desirable for other airborne operations.
- (6) Air-landed forces normally retain tactical integrity upon landing and can be more rapidly employed.

#### **4. Concepts of Employment**

a. Air-landed forces are used to overcome distances and barriers and to bypass enemy defenses.

b. Forces in reserve with an air-landed capability may compel the enemy to disperse his forces for the protection of vital installations and terrain.

c. Air-landed operations should be conducted in mass, with surprise, and should be completed in the shortest possible time.

d. An air-landed force may be employed in an objective area to seize one airhead when a large force is needed to secure critical objectives relatively close together. On the other hand, the force may be employed in an objective area with subordinate units dispersed to minimize the effects of enemy atomic weapons.

e. Army air-landed operations reduce troop vulnerability to enemy atomic weapons by using aircraft within the objective area to extend the depth of operations of reconnaissance and security forces; by reducing defensive forces in the battle position; and by holding strong reserves in dispersed locations prepared for rapid delivery in Army tactical transport aircraft to threatened or affected areas.

*f.* Air-landed operations conducted with ground or amphibious operations are launched to give maximum assistance to the main effort.

*g.* Air-landed operations usually are launched into lightly defended areas or into areas subjected to extensive preassault preparation by atomic or nonatomic fires.

*h.* An air-landed force can rapidly exploit the effects of nuclear weapons.

*i.* Air-landed operations may be conducted day or night and during periods of limited visibility.

*j.* Air superiority over the area of operations is required for large-scale air-landed operations; however, limited operations may be conducted without air superiority by using surprise techniques and tactics such as low-level flight, operations during periods of limited visibility, and smoke.

*k.* Ground forces should link up early if the air-transported assault force is not displaced or reinforced in the objective area.

*l.* Air-landed forces may be employed in conjunction with other airborne forces.

## 5. Missions

Air-landed operations include, but are not limited to, the following specific missions:

*a.* Rapidly exploiting the effects of nuclear weapons.

*b.* Enveloping defended areas or traversing natural barriers which hinder the seizure of an objective.

*c.* Assisting all types of tactical maneuvers.

*d.* Assisting armored, mechanized, or motorized forces in exploitation or pursuit operations.

*e.* Seizing critical terrain features, particularly in fluid operations such as pursuit, exploitation, and advances to contact.

*f.* Reinforcing units cut off, surrounded, or isolated.

*g.* Moving reserves, particularly in defense on a wide front or mobile defense.

*h.* Resupplying by air.

*i.* Concentrating dispersed forces in preparation for a tactical operation.

*j.* Dispersing forces as may be required following a phase of operations.

*k.* Combating partisan or guerilla forces.

*l.* Attacking enemy airborne or air-landed forces.

*m.* Moving reconnaissance forces and patrols.

- n.* Evacuating casualties.
- o.* Assisting in ship to shore movements in the conduct of amphibious operations.

## **6. Capabilities and Limitations**

*a. Capabilities.* Air-landed forces provide an additional means by which a commander may decisively influence operations. The mobility of air-landed forces allows them to mass quickly enough to influence tactical operations and permits them to be used economically because they can move a small reserve throughout broad and deep areas. Air-landed forces can easily and rapidly cross terrain barriers such as water, mountains, and jungles, and are particularly suited for the exploitation of nuclear weapons.

*b. Limitations.* Air superiority over the area of operations is required for large-scale air-landed operations. Currently available Army transport aircraft cannot move tanks, heavy artillery, or other items of heavy equipment into the objective area. Adverse weather is a greater consideration than in other ground operations. Mobility in the objective area may be limited by the shortage of ground transportation. See also paragraphs 27 through 29.

## **Section III. ORGANIZATION, COMMAND, AND RESPONSIBILITIES**

### **7. Mission of Army Aviation**

The mission of Army aviation is to augment the Army's capability of conducting effective combat operations. By definition, it is organic aviation immediately responsive to the demands of the arms and services, employed to enhance the mobility and flexibility and battle efficiency of ground combat forces.

### **8. Control of Army Transport Aviation**

#### *a. Field Army.*

- (1) Army transport aviation units are assigned to the field army and normally are attached to corps when employed in support of corps tactical operations. The allocation of these units is not fixed, but varies within the army, depending upon the needs of the corps and the desires of the field army commander to weight a main effort or provide additional air transport to a particular corps.
- (2) Field army provides the backup support required by corps transport aviation units and approves and coordi-

nates air-landed missions involving the movement of a force beyond or across corps and army boundaries.

*b. Corps.* A corps employs transport aviation units by further attaching them to, or placing them under, the operational control of corps units for specific operations. Air-landed operations involving movement beyond or across subordinate unit boundaries are either controlled or coordinated by corps.

*c. Division.* Transport aviation units normally are not attached below division level. They are employed at division level, or may be placed under the operational control of division units for a specific operation. Authority to approve air-landed operations normally is not delegated below division level.

*d. Battle Group.* When transport aviation units are placed under the operational control of a battle group, control of the aviation unit is retained at battle group level, except as noted in *e* below.

*e. Other.* In special situations, a transport aviation unit may be placed under the operational control of any artillery, infantry, or armor unit regardless of size when this will facilitate the accomplishment of the assigned mission.

## **9. Responsibilities of Directing Headquarters**

Before a mission is executed, the directing or approving headquarters insures that—

- a.* Coordination is effected with all headquarters concerned.
- b.* Adequate logistical support is available to the participating force for the duration of the operation and the means of delivery are specified and coordinated.
- c.* The size and composition of the force are adequate to accomplish the mission.
- d.* The necessary fire support (ground and air) is made available to the force and is coordinated.
- e.* The anticipated duration of the operation is announced.
- f.* Necessary intelligence has been produced.
- g.* Information regarding friendly partisans, guerillas, and/or clandestine agencies active in the objective area (including the means of contacting them) is furnished to the unit executing the mission.
- h.* Adequate communications are available to the force.

## **10. Responsibilities of Air-Landed Force**

The headquarters charged with the responsibility of preparing for and executing an air-landed mission—

- a. Prepares the necessary plans for executing the mission.
- b. Assumes command of units attached to it or placed under its operational control for the mission.
- c. Issues preliminary instructions to start concurrent planning by all participating units.
- d. Determines the aircraft requirements and allocates available aircraft to subordinate units.
- e. Designates and prepares loading areas, including specific loading sites and assembly areas.
- f. Selects landing zones for subordinate units.
- g. Prepares the air movement table.
- h. Determines the fire support (air and ground) required for the operation, submits fire support requests to next higher headquarters as necessary, and coordinates the fire support made available.
- i. Insures that the efforts of all elements of the participating force are coordinated.
- j. Prescribes and supervises training and rehearsals as necessary.
- k. Determines the supplies and equipment required and submits necessary requisitions.
- l. Issues and enforces counterintelligence instructions.
- m. Supervises loading.
- n. Directs the ground operations.
- o. Insures that communications for all elements of the participating force are coordinated.

## 11. Organization of Air-Landed Force

- a. The strength, composition, and equipment of the units in an air-landed force depend on the mission; the type operation; the time of linkup, withdrawal, or displacement; and the enemy and civilian situation. The following may be attached to the force assault echelon:

- (1) Air control team(s).
- (2) Pathfinder team(s) (app. V).
- (3) Artillery unit(s).
- (4) Engineer unit(s).
- (5) Medical unit(s).
- (6) Liaison personnel (linkup force).
- (7) Communication unit(s).
- (8) Reconnaissance unit(s).
- (9) Recovery and disposition personnel.

*Note  
(no QM)*

*b.* The composition of subordinate elements of the assault echelon is determined while developing the ground tactical plan. Attachments are made as early as possible to give the units an opportunity to develop plans concurrently. Elements of this echelon normally are organized into reinforced companies and reinforced platoons for the air movement to conform to the organization for combat required in the objective area.

## **12. Command Relationships**

Units of Army transport aviation attached to or in support of Army combat forces have the same relationship with the supported force as any other attached or supporting unit. The Army aviation unit commander provides technical advice on matters pertaining to his unit and assists in formulating plans and orders concerning the operation. Army aviation special staff sections at all levels exercise staff supervision over Army transport aviation units.

## **13. Pathfinders**

*a.* The rapid growth of Army aviation and its increasing tactical applications within the combat zone demands that Army pathfinder teams be trained to support all combat units in operations involving the use of Army transport aircraft. Experience has shown that under certain conditions of weather and terrain, or at night, it is imperative to have personnel specially trained in the terminal guidance of aircraft and in aerial delivery to operate in the objective area.

*b.* The primary mission of Army pathfinders is to aid in the navigation and control of Army transport aircraft. Among the various types of missions they must be able to perform on the atomic battlefield is that of hasty field radiological survey. For details on the organization, equipment, and employment of pathfinders, see appendix V.

## CHAPTER 2

### ARMY TRANSPORT AVIATION SUPPORT

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#### **Section I. ORGANIZATION OF ARMY TRANSPORT AVIATION UNITS**

##### **14. General**

The organization indicated in this manual is the present structure for transport aviation units within the type field army. It is an interim organization pending the outcome of further developments and tests. The present helicopter unit TOE provides two types of companies based on the lift capability of the helicopters: light ( $1\frac{1}{2}$ -ton) and medium (3-ton). Fixed-wing aircraft units likewise are organized according to lift capability.

##### **15. Assignment**

Transport aviation units normally are assigned to a field army. They may be subsequently attached to a corps and employed as corps troops. They may support units of the corps by being further attached to or placed under operational control of subordinate corps units for specific missions. Normally, they are not attached below division level, but operational control may be delegated to subordinate units. Such control is exercised by the commander responsible for the overall mission and for the duration of the mission only.

##### **16. Tactical Transport Aviation Battalion**

The transport aviation battalion consists of a headquarters and headquarters unit and a grouping of two or more aviation companies. The headquarters and headquarters units provides command supervision, administration, planning, coordination, and control of the assigned or attached aviation companies. It consists of the following sections: administrative and mess, communications, operations and intelligence, and supply and maintenance.

##### **17. Transport Aviation Company**

The transport aviation company (rotary-wing, fixed-wing) consists of a company headquarters, a maintenance and service

platoon, and three transport aviation platoons. As presently organized, 20 transport aircraft are organic to the rotary-wing company (light), 16 to the rotary-wing company (medium), and 16 to the fixed-wing company (light).

## **Section II. RESPONSIBILITIES**

### **18. Liaison**

- a. When a transport aviation unit is notified that it will support a tactical operation, the commander or a designated member of his staff establishes and maintains liaison with the tactical unit it will support.
- b. The transport aviation unit commander or his representative acts as a technical adviser to the tactical commander in all matters pertaining to aviation unit organization and employment.

### **19. Planning**

- a. The transport aviation unit commander and the supported unit commander begin concurrent detailed planning when they receive the implementing directive. They consider the following factors:
  - (1) The type and duration of the mission to determine the number of aircraft and the special equipment needed.
  - (2) Communication, including communication among aircraft, the tactical unit, and the pathfinder unit in the objective area.
  - (3) Navigational aids: the number, type, and method of employment must be disseminated to all concerned.
  - (4) Maintenance support: in operations of extended duration, additional maintenance personnel and facilities may be needed at the loading area, refueling point, or landing zone, to perform limited aircraft maintenance.
  - (5) Intelligence, including detailed information of the weather (including long-range forecast), the enemy (ground and air capabilities), the terrain (in loading areas, along flight routes, and in landing zones), and maps and aerial photos.
  - (6) Engineer support: if the airhead is to be used as a base for further air-landed operations (logistical or tactical), consideration should be given to the amount of engineer support that may be required to sustain continued operations; e.g., improvement of landing strips.

- (7) Organic aviation support: the aviation equipment and personnel organic to the supported unit may be employed in both the training and operational phases.

b. The transport aviation unit commander prepares and disseminates to members of his command the instructions they need to carry out their support missions. He develops these instructions concurrently with the air-landed force commander's plan and disseminates them before the transport aviation unit moves to the loading area. They may include (in addition to instructions in the air-landed force commander's plan) the—

- (1) Designation of flight leaders and the unit(s) to be supported by each.
- (2) Composition of flight units by aircraft strength based on the air-landed force commander's plan.
- (3) Location of loading and landing sites.
- (4) Location of refueling facilities and instructions for using them. *(for aircraft)*
- (5) Schedule for the movement to the loading area.

## **20. Aircraft for Training**

When possible, the type aircraft to be used in the operation are used in familiarization training and rehearsals with the tactical unit.

## **21. Refueling**

a. The transport aviation unit commander is responsible for providing refueling facilities and for planning the location of refueling points in coordination with the supported unit commander.

b. The refueling facilities should be in the loading area. This permits the aviation unit to maintain the highest possible lift capability throughout the operation. Normally, aircraft carry a minimum amount of fuel in addition to the reserve, but they refuel frequently. In this way they can carry greater combat loads.

## **22. Maintenance**

In addition to the maintenance performed on radios, motor vehicles, and tools, the transport aviation unit commander is responsible for the organizational maintenance of the assigned aircraft. When possible, plans are made to echelon maintenance personnel into the objective area during the conduct of operations. Transportation corps field maintenance units perform third echelon maintenance. Fourth echelon maintenance and supply are provided by transportation corps heavy maintenance and supply companies. Field maintenance detachments may be attached to

separate tactical transport aviation companies to perform third echelon maintenance as required. Depot maintenance and supply are performed by transportation Army aircraft depot support battalions.

### **23. Movement to Loading Sites**

When the loading sites have been selected, it is the transport aviation unit commander's responsibility to insure that all participating personnel of his unit are oriented as to their exact location, the route to them, and the time of arrival.

### **24. Loading**

a. The transport aviation unit commander or his representative assists in the selection of loading sites to insure that they meet requirements. He advises and assists the supported unit in preparing loading plans based on the lift capability of the aircraft. He is responsible for insuring that the weights are not in excess of the lift capability and that loads are properly loaded and lashed so they will not create a hazard while in flight.

b. The transport aviation unit is responsible for the establishment of local air traffic control facilities at the loading area.

### **25. Movement To and Return From the Objective Area**

The transport aviation unit commander is responsible for providing aircraft support within his capabilities, as directed by the supported unit or air-landed force commander. He advises and assists the supported unit commander in planning the details for the flight, including routes, altitudes, speed, formations, control points, navigation aids, and other means of regulating the flight to and from the objective area. The division aviation officer coordinates as necessary with the flight operations center (FOC) of the corps.

### **26. Landing Zones and Landing Sites**

The transport aviation unit commander advises and assists the supported unit commander in selecting landing zones and sites (app. VI).

## **Section III. CAPABILITIES AND LIMITATIONS**

### **27. Physical Capabilities and Limitations of Transport Aircraft (See also Appendix II)**

a. *Helicopters.* It must be noted that there is a balance between the capabilities and limitations of a helicopter. When one of the

three variables is changed (fuel, range, or payload), it will have the effect of changing at least one of the other variables.

(1) *Capabilities.*

- (a) Under normal conditions, helicopters can ascend and descend at a relatively steep angle, enabling them to operate from confined and unimproved areas.
- (b) While hovering, troops and cargo can be loaded and unloaded.
- (c) Cargo can be transported as an external load and delivered to areas otherwise inaccessible.
- (d) Helicopters are capable of horizontal flight in any direction: forward, backward, sideward, or obliquely.
- (e) Helicopters possess a wide speed range, from 0 to approximately 120 knots.
- (f) They can fly safely and efficiently at low altitudes, using the terrain and vegetation for cover and concealment.
- (g) Their turn-around time is short, making possible rapid shuttle movements.
- (h) They can be landed in the objective area in a tactical formation, landing zones permitting.
- (i) Their ability to decelerate their airspeed rapidly, combined with their capacity for slow forward speed and near vertical landing, enables helicopters to operate under the marginal weather conditions prescribed for each operation.

(2) *Limitations.*

- (a) A helicopter unit has a relatively high deadline factor during continuous operations due to maintenance difficulties.
- (b) The fuel consumption rate of helicopters is high, imposing limitations on range and allowable cargo load.
- (c) Weight and balance affect flight control. Loads must be properly distributed to keep the center of gravity within allowable limits.
- (d) Hail, sleet, icing, heavy rains, and gusty winds (30 knots or greater) may limit or preclude their use.
- (e) Engine and rotor noise may compromise secrecy.
- (f) Pilot fatigue is an element requiring greater consideration in the operation of rotary-wing than fixed-wing aircraft.
- (g) The load-carrying capability of helicopters decreases with increases of altitude, humidity, and temperature.

- (h) Night and marginal weather operations are limited due to the lack of inherent stability and instrumentation.
- (i) A wind velocity above 10 knots normally affects the selection of the direction of approach and landing.

*b. Airplanes.*

(1) *Capabilities.*

- (a) Army tactical transport airplanes can operate from relatively short, unimproved landing areas providing the terrain is fairly flat.
- (b) They have a greater range than helicopters and require less maintenance.
- (c) Cargo can be transported as an external load suspended from bomb shackles on the wings, and can be dropped with a high degree of accuracy from low altitudes.
- (d) Due to their relatively slow speed and high maneuverability, transport airplanes can fly safely and efficiently at low altitudes using the terrain and vegetation for cover and concealment.
- (e) Landings and takeoffs at night can be made with a minimum of lighting.

(2) *Limitations.*

- (a) Transport airplanes require larger and more improved landing areas than helicopters.
- (b) Hail, sleet, icing, heavy rains, and gusty winds (30 knots or more) may limit or preclude their use.
- (c) A wind velocity above 10 knots normally affects the selection of the direction of approach and landing.

*c. Special Considerations.* The factors mentioned in *b*(2)(a) and (b) above, are variable. Commanders of supporting aviation units provide specific data for each type aircraft and operation.

## **28. Night and Low Visibility Operations**

*a. Operation Requisites.* Normally, transport aircraft can operate when—

- (1) The ceiling permits safe flying above the highest terrain to be traversed.
- (2) There is enough forward visibility for the pilot to see obstacles in time to avoid them when flying at reduced speeds (minimum, 1 mile).
- (3) There is enough visibility for the pilot to distinguish prominent landmarks.

*b. Advantages of Night Operations.* Darkness offers concealment for the transport aircraft from enemy observation and protection from enemy aircraft.

*c. Disadvantages of Night Operations.*

- (1) The necessity for more elaborate control measures and for caution on the part of pilots and passengers slows down night operations. Operations may be further prolonged when it becomes necessary to fly the aircraft singly rather than in a compact formation.
- (2) The present lack of adequate guidance systems restricts the choice of landing zones.
- (3) The need for additional night training of aircraft crews.

## **29. Aircraft Availability**

Aircraft availability is an important consideration in all airborne operations. It is directly influenced by the adequacy and efficiency of maintenance and supply activities, as well as the distance of the operating companies from the service companies. Given time and support to prepare for a particular operation, transport aviation units can reach 100 percent availability. During periods of sustained operations, airplane units normally have a greater percentage of aircraft availability than helicopter units.

# **CHAPTER 3**

## **TACTICAL PLANNING**

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### **Section I. GENERAL**

#### **30. General**

The planning outlined in this chapter represents the ideal planning development. Planning time can be materially reduced by maintaining forces in a state of operational and logistical readiness and by the development of standing operating procedures.

#### **31. Preliminary Planning**

a. Planning for air-landed operations normally originates at division or higher level. Preliminary planning starts with the concept of tentative missions. These tentative missions are based on the—

- (1) Progress of ground tactical operations.
- (2) Status and composition of the air-landed force.
- (3) Logistical support available.
- (4) Enemy situation and capabilities.
- (5) Analysis of the terrain.
- (6) Predicted weather conditions.

b. Subordinate commands may be directed to conduct all or part of the more detailed planning for air-landed operations.

#### **32. Planning Directive**

a. Warning orders from higher headquarters may be oral and fragmentary in the early stages of planning. A complete written order may be issued later.

b. Directives issued at all levels of command for planning an air-landed operation contain the following information:

- (1) Mission and general plan.
- (2) Approximate time and duration of the operation.
- (3) Available intelligence.
- (4) Plans for insuring secrecy.
- (5) Tentative participating units and the length of time for participation.

- (6) Fire support available.
- (7) Necessary logistical information.
- (8) Communication information.
- (9) Special equipment authorized.
- (10) Arrangements for altering, postponing, or canceling the operation.

### **33. Planning Technique**

a. A unit that is directed to plan an air-landed operation begins planning immediately upon receipt of a warning order and continues until the operation is executed or canceled. The amount of detail varies with the scope of the operation, the size of the force, and the time available. The tactical plan depends directly on the mission, the availability of aircraft, logistical support, and intelligence.

b. Generally, plans are developed by working backward from the objective in the following sequence:

- (1) The ground tactical plan, including a determination of the strength and composition of the forces required and the development of a logistical plan to support the tactical plan.
- (2) The landing plan, which indicates the sequence, time, and place of arrival of troops and material.
- (3) The air movement plan, based on the landing plan.
- (4) The loading plan, based on the air movement plan.

c. Although planning follows generally the sequence indicated above, these plans are closely interrelated and are developed concurrently. Logistical and personnel planning begins with tactical planning and continues concurrently throughout the planning sequence.

d. Simplicity is the guiding principle in the preparation of air-landed operational plans.

e. Planning staffs of participating or planning commands plan concurrently to achieve maximum coordination and to reduce planning time.

### **34. Echelonnement**

The troops and equipment of each participating unit are divided into two echelons for delivery to the objective area.

a. *Assault Echelon.* This echelon consists of the troops, accompanying (assault) supplies, and equipment needed for the ground tactical mission which can be transported by aircraft into the objective area.

*b. Followup Echelon.* This echelon is made up of the remainder of the unit. It joins the assault echelon as soon as the situation permits.

### **35. Transport Aircraft Requirements**

The number of transport aircraft required is determined for each mission. The type aircraft available and the allowable cargo load for each are the major determining factors. The load-carrying capabilities of aircraft change frequently owing to weather conditions and altitude. Appendixes VIII and IX give detailed instruction on the methods of determining transport aircraft requirements.

## **Section II. INTELLIGENCE**

### **36. General**

Intelligence planning for air-landed operations is conducted according to the principles and procedures for other operations, but the following points are either characteristic or receive particular emphasis:

- a.* The participating unit commander must state his specific intelligence requirements early during the planning phase and must continue his collection effort throughout the planning phase.
- b.* The collection effort must be planned carefully and before the operation starts.
- c.* Higher headquarters provide most of the intelligence and information.
- d.* Ground reconnaissance by the participating unit usually is impossible or impractical until the operation is under way.
- e.* Terrain analysis is more detailed and covers a larger area than for other operations.
- f.* Accurate and timely weather forecasts are of critical importance and cover a greater area than for other operations.
- g.* Intelligence on the enemy situation is greater in scope owing to the larger area of projected operations and the greater distance from the friendly line of contact and, as a result, may not be detailed in all aspects. However, information on the location of antiaircraft units along the route to the objective and of tank units close to the objective are of extreme importance.
- h.* The possibility of contacting friendly guerillas or underground personnel in the objective area is a basic intelligence consideration.

i. Counterintelligence for the impending operation is of extreme importance.

j. Intelligence dissemination to subordinate units must be extensive.

k. Detailed intelligence and counterintelligence briefing of all personnel down to and including the individual soldier is essential.

### **37. Collection Effort**

a. Information and intelligence obtained from higher headquarters during the planning phase must be processed and disseminated to all concerned.

b. The collection plan provides the intelligence officer(s) with a logical, orderly system for directing the collection effort. It insures that all necessary information is collected in time to be used and that all possible sources of information are exploited by appropriate collecting agencies. The fundamental information of weather, terrain, and enemy forms the basis for his plan. The commander, other staff officers, or higher units may add other specific requirements (EEI). The collection plan itself should be kept simple and, whenever possible, should be prepared in written form. In an operation of this type where the target area is inaccessible to many of the more common collection agencies, greater reliance must be placed on agencies having long-range capabilities. To carry out their tasks, they need more time for planning and execution. This means that the intelligence officer must allow greater lead-time in his collection plan if he is to be prepared to furnish the commander timely information. There is no specific form to be used, but it should include—

- (1) Information requirements.
- (2) Notes for orders and requests.
- (3) Agencies to be used.

c. EEI are the commander's current high priority intelligence requirements. Some of these essential elements of information may be—

- (1) What is the strength, disposition, composition, and identity of enemy forces in the objective area?
- (2) What areas in the vicinity of the objective are suitable for landing zones?
- (3) What obstacles in the objective area will interfere with our seizing the objective?
- (4) What protective obstacles in the objective area will assist us to accomplish our mission?

d. In order to obtain the detailed information necessary to answer particular EEI and the other information requirements,

appropriate orders and requests to available agencies are prepared (app. III).

e. During the preparation phase, the majority of information must be obtained from higher headquarters. Agencies employed may include—

- (1) Tactical Air Force reconnaissance elements.
- (2) Army aviation elements.
- (3) Tactical weather station.
- (4) Combat troops (division and/or battle group).
- (5) Air-landed reconnaissance patrols. (Consideration must be given to the fact that the projected operation may be compromised by use of these patrols.)
- (6) Special collection agencies.

f. During the execution phase, higher headquarters as well as organic agencies continue to provide information. Maximum use is made of organic and supporting Army observation aircraft. Agencies employed may include—

- (1) Army aviation elements.
- (2) Tactical Air Force reconnaissance elements.
- (3) Units in contact (for short-range operations).
- (4) Air-landed reconnaissance patrols.
- (5) Special collection agencies.

g. The collection plan must be kept current. As the commander formulates his estimate and plans, the intelligence officer must continue throughout the operation to analyze and supplement the collection plan to insure its completeness.

## **38. Weather**

a. The tactical weather station at corps provides weather information, including predictions during the last crucial minutes before takeoff.

b. Weather information is studied to determine its effect on operations in the objective area. The weather also is analyzed to determine if it may—

- (1) Necessitate postponement or cancellation of the operation.
- (2) Prevent tactical air support units from completing their preliminary missions.
- (3) Curtail training for the operation.
- (4) Interrupt or delay loading for the operation.
- (5) Require any special items of equipment or supplies for the operation.
- (6) Prevent flight to, or landing in, the objective area or necessitate the use of alternate routes.

- (7) Prevent or delay the arrival of air-transported or ground reinforcements.
- (8) Interfere with the tactical air support during the operation.
- (9) Limit friendly or enemy use of antiaircraft, radar, searchlights, air attack, atomic weapons, or CBR agents.
- (10) Affect efficient operation of the communication system.

c. Weather minimums prescribe the worst acceptable weather in which the force commander will allow the takeoff for the operation. The intelligence officers of the supporting and supported units work together to reach a joint recommendation. The operation should be postponed when weather conditions fall below the established minimums. The factors which influence the selection of weather minimums are the experience of the pilots and the type aircraft employed, the urgency of the mission, the navigational aids available, the terrain along the flight routes, and the time of the operation.

## 39. Terrain

- a. The terrain in the objective area is analyzed to determine—
  - (1) Potential landing zones and sites (day or night).
  - (2) Areas offering cover and concealment for assembly and installations.
  - (3) Obstacles to landing and ground movement.
  - (4) Critical terrain features.
  - (5) The location of enemy observation or potential observation over the objective area.
  - (6) The field of fire of located enemy weapons.
  - (7) The existence of enemy fortifications.
  - (8) Avenues of approach from potential landing sites to the objective(s).
  - (9) Landmarks.
- b. After analyzing the objective area, the terrain lying between the loading area and the objective area is analyzed to determine the—
  - (1) Terrain corridors and compartments that can be used as routes leading to the objective area.
  - (2) Road net, rail net, and power and telephone lines.
  - (3) Location of landmarks which help to define the flight routes.
  - (4) Vegetation which might provide concealment during movement.
  - (5) Location of emergency landing sites.

## **40. Enemy**

*a.* In analyzing the enemy situation to determine what effect it will have on the air-landed operation, a particular effort is made to determine the composition, status, and capabilities of—

- (1) Antiaircraft and automatic weapons, searchlights, and radar or sound detectors which may affect the air movement.
- (2) Units along the line of contact, including artillery.
- (3) Reserves: infantry, armor, and airborne.
- (4) Forces within the objective area.
- (5) Electronic warfare devices.
- (6) Air.

*b.* Enemy strength and weaknesses should be analyzed to determine whether they may disclose specific enemy vulnerabilities. Peculiarities and weaknesses which may be mentioned in appropriate circumstances include, among others, the following:

- (1) *Personnel.*
  - (a) Replacement shortages.
  - (b) Morale less than excellent.
  - (c) Disproportionate number of very young or very old men.
- (2) *Intelligence.*
  - (a) Susceptibility to deception.
  - (b) Susceptibility to electronic countermeasures.
- (3) *Operations.*
  - (a) Habitual repetition of certain schemes of maneuver.
  - (b) Faulty disposition of reserves.
  - (c) Inadequate troop training.
  - (d) Inadequate air and artillery support.
- (4) *Logistics.*
  - (a) Shortage of supplies or equipment.
  - (b) Location of especially vulnerable points along principal routes of communication.
- (5) *Civil affairs.*
  - (a) Hostile attitude toward civil populace or of the civil populace toward the enemy.
  - (b) Inadequacies in the control of civil communications (civilian communication and transportation facilities), including movement.

## **41. Intelligence Estimate**

*a.* The preparation of the intelligence estimate begins immediately upon receipt of a planning directive. First priority is given

to obtaining the following information from the higher headquarters:

- (1) The weather forecast for the period of the operation.
- (2) Tactical studies of weather and terrain.
- (3) The enemy situation.

b. As information is received, it is analyzed to determine the following:

- (1) The effect of the weather and of the terrain on the mission, enemy's capabilities, and the use of atomic weapons or CBR agents.
- (2) The enemy's capabilities, peculiarities, and weaknesses.
- (3) The probable order of adoption of enemy capabilities and the effect each will have on the mission.

c. As information is received and analyzed, it is presented to the commander and staff to assist them in their planning. A list of essential elements of information is prepared to assist the commander and staff in completing final plans, and a ground and air collection effort is started without delay.

## **42. Intelligence Operations**

The collection effort for an air-landed operation is a responsibility of all levels. Once the operational mission is assigned a tactical unit, the intelligence system of all headquarters concerned is geared to meet the unit's needs. Intelligence operations before and during the operation are carefully coordinated. They consist of air and ground reconnaissance.

a. An air reconnaissance plan, developed and implemented early, may include all of the following:

- (1) Photo and visual reconnaissance during the planning phase by both Air Force and Army aircraft. Air photos are distributed in greater than usual numbers to subordinate units. Low obliques of the objective area are especially helpful to subordinate commanders in making their final plans. Since ground reconnaissance prior to the execution phase may be limited, the commander and his staff make full use of visual air reconnaissance to obtain information of the area of operation.
- (2) Photo and visual reconnaissance during the execution phase. Maximum use is made of organic and supporting aircraft.
- (3) When available, surveillance equipment mounted in Army aircraft is used during both the planning and execution phases to obtain current information of the objective area and the flight routes.

*b.* The ground reconnaissance plan may include the following:

- (1) Ground reconnaissance by units in contact with the enemy. The information obtained is of particular value in planning flight routes immediately forward of the line of contact.
- (2) Air-landed reconnaissance patrols along the flight routes and in the objective area to gain information of the enemy and terrain. When such patrols are used early, the possibility of compromising the projected operation must be considered. Participating personnel should not be provided with information other than that necessary to accomplish their patrol missions.
- (3) Special collection agencies available at division and higher echelons may be able to provide intelligence information.

*c.* Requirements for reconnaissance and collection agencies within the airhead must be considered early in the planning for the conduct of intelligence operations. Plans to intensify the collection effort should provide every possible means of gaining information on the movement of enemy reserves, particularly armored or mechanized troops, which might be committed against the airhead. These plans should set forth the establishment of observation posts, patrol missions, missions for air reconnaissance, reconnaissance units, and combat troops. Provision must also be made for communication to be available to the intelligence officer to pass all information collected to higher headquarters.

### **43. Intelligence Briefing**

*a.* The personnel that participate in an air-landed operation should be briefed on the weather, terrain, and the enemy. Briefings must be thorough so that marked maps, sketches, photos, or written orders need not be carried into the objective area. This reduces the risk of compromise.

*b.* Situation maps, air photos, terrain models, sand tables, diagrams, and other visual aids are used to the maximum in intelligence briefings.

*c.* Escape and evasion instructions to all participants should cover the following:

- (1) First priority is given to the evacuation of personnel from the vicinity of downed aircraft. Personnel are instructed in the method of marking suitable loading or pickup sites for the evacuation aircraft.
- (2) If evacuation by aircraft is denied by the enemy, terrain, or weather, the senior survivor organizes the others into

a tactical unit and determines the disposition to be made of aircraft and equipment. This unit moves toward the objective area or the friendly line of contact. It makes continuing efforts to find and mark suitable site(s) for evacuation by aircraft.

- (3) Evasion routes, sympathies of the local populace, existing underground organizations, and other information which would assist personnel forced down in enemy territory.

#### **44. Counterintelligence**

A counterintelligence plan is started early to preserve secrecy of the impending operation and prevent the enemy from obtaining information which might result in an attack on the air-landed force during the preparation, mounting, or landing phase when the force is most vulnerable. Specific measures included in the plan are the—

- a.* Establishment of a secured area in which all planning, discussions, and briefings are conducted.
- b.* Designation of a code name for the operation if required.
- c.* Establishment of a communication control system.
- d.* Provision of secure loading areas.
- e.* Use of smoke, camouflage, and darkness.

### **Section III. TACTICAL PLAN**

#### **45. General**

The mission indicates the amount of detail required in the tactical plan. Therefore, an analysis of the mission is the first step. This analysis discloses the task or tasks that must be accomplished and the priority of accomplishment. Planning follows the same principles that are used for ground operations. Regardless of the detail in the tactical plan, the sequence of the planning is the same for all operations. The tactical plan encompasses, as appropriate, a plan of maneuver, operation time schedule, defense plan, fire support plan, a ground linkup, withdrawal, or displacement plan, and alternate plans.

#### **46. Plan of Maneuver**

*a. General.* The plan of maneuver (fig. 1) provides a scheme for seizing the objective area by assigning missions and objectives, designating an airhead line and a reconnaissance and security line, prescribing boundaries and, if necessary, a task organization, and

providing a reserve. The ground plan of maneuver is based on normal considerations governing the conduct of ground operations, but some modifications may be made because of initial decentralization of command control. The nature and location of landing zones are also considerations in formulating the plan of maneuver.

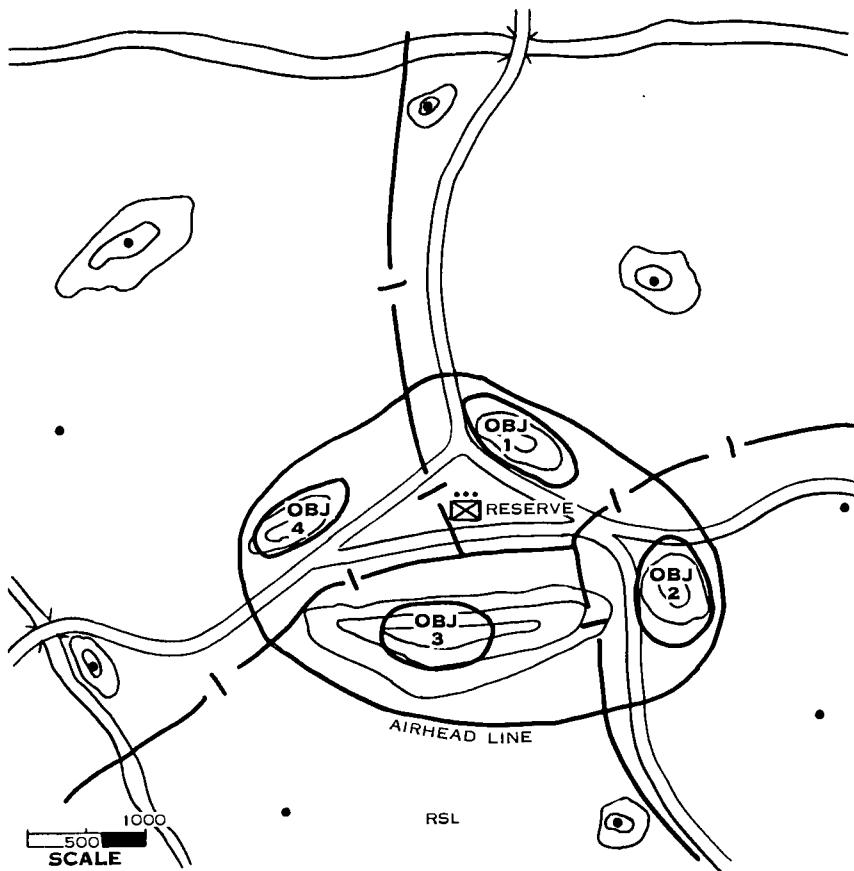


Figure 1. Plan of maneuver.

b. *Objective*. The objectives selected should—

- (1) Further the accomplishment of the mission.
- (2) Normally be located on critical terrain.
- (3) Be within the capability of the unit assigned.
- (4) Include those essential for the defense of the airhead.

c. *Airhead Line and Airhead*.

- (1) The airhead line is the perimeter of the airhead. It includes all of the objectives and the maneuver space

required for their defense until linkup or reinforcement is complete, or until subsequent operations are initiated. This line is prescribed by the air-transported force commander.

- (2) The mission, friendly capabilities, and the enemy situation and capabilities influence the size of the airhead to be seized and held.
- (3) It is desirable to include within the airhead line landing zones and maneuver space for seizing objectives; however, terrain considerations may not permit this.
- (4) The airhead line should take maximum advantage of natural and planned manmade obstacles in order to add to its strength and to economize on troops.

*d. Reconnaissance and Security Line.* The RSL is occupied by the air-transported force security echelon. The mission of this echelon is to provide early warning, to delay and disorganize the enemy, and to deceive him as to the location of friendly forces within the airhead. The RSL is established beyond the airhead line where it can prevent enemy ground reconnaissance and close observation of the airhead. It may consist of outposts, observation posts, roadblocks, and reconnaissance detachments. Boundaries may be extended through this line to fix the responsibility of subordinate units. The RSL does not restrict the maneuver of reconnaissance units. They may reconnoiter beyond it to accomplish their mission. When the commander plans for the location of the line, he should consider the—

- (1) Mission of the reconnaissance and security units.
- (2) Probable enemy avenues of approach.
- (3) Terrain beyond the airhead line that affords the best observation of probable enemy avenues of approach.
- (4) Units of the force that are available to form the security echelon.
- (5) Communication within the security echelon and between it and the airhead.
- (6) Mobility of the security echelon.
- (7) Fire support available to the security echelon.

*e. Boundaries and Sectors.*

- (1) When the objectives and airhead line have been selected, sectors of responsibility are assigned to subordinate units by designating boundaries. The terrain should be divided into sectors in such a way that a subordinate unit will not have to attack simultaneously in divergent directions. Boundaries should be readjusted as little as pos-

sible during the transition from the assault to the defensive phase. It is desirable for each subordinate unit to have adequate landing zones and maneuver room within its sector. The reduced strength of the unit furnishing the reserve must be considered when assigning its sector. Each unit has the responsibility of seizing the objectives within its sector, clearing it of enemy forces, and defending it.

- (2) Company boundaries defining the areas of defensive responsibility may be terminated at a point short of the RSL. The boundaries of companies assigned sectors of the RSL are extended from the airhead line to the limit of ground observation beyond the RSL.

*f. Task Organization.*

- (1) The task organization depends on the size of the sectors of responsibility as well as the nature and type of tasks assigned the major subordinate units. So far as practicable, tasks should be proportionate to the combat capability of each unit. The task organization should provide for a reserve, even though no immediate task or area of responsibility may be assigned the reserve.
- (2) Factors that affect the organization and that vary from the plan of maneuver in other ground operations are—
  - (a) The number of missions that are to be accomplished almost simultaneously in the objective area.
  - (b) The fact that subordinate units often attack in different directions to accomplish the overall mission.
  - (c) The varying distances between units during the initial assault.
- (3) The above factors influence the commander toward decentralized control to further the accomplishment of each major subordinate unit's mission.

*g. Reserve.* The reserve normally is brought into the airhead in the assault echelon, but not necessarily in the initial lift when a shuttle movement is required. Since the transported force frequently has more objectives to seize than in other ground operations, the reserve usually is small—normally a platoon for a battle group. Additional reserve forces may become available from other elements as they accomplish their initial tasks. The reserve's location should take into account the—

- (1) Proximity of areas of probable employment.
- (2) Availability of routes for movement.
- (3) Availability of cover and concealment.
- (4) Enemy capabilities.

- (5) Convenience with which the reserve can provide depth to the defense in the most threatened sector.
- (6) Location of its parent unit.

## **47. Timing the Operation**

*a.* The commander considers the following in selecting the hour for the landing:

- (1) The enemy situation and capabilities (air and ground).
- (2) The influence of the predicted weather.
- (3) Visibility: day and night.
- (4) Availability of fire support: artillery, air, and atomic.
- (5) Ground mobility.

*b.* A daylight landing permits more effective air and artillery support than a night landing and makes it easier to assemble troops and equipment.

*c.* The principal advantages of landing at night are that darkness aids tactical surprise and reduces the effectiveness of enemy fire.

*d.* Timing the operation with respect to ground operations is influenced by the—

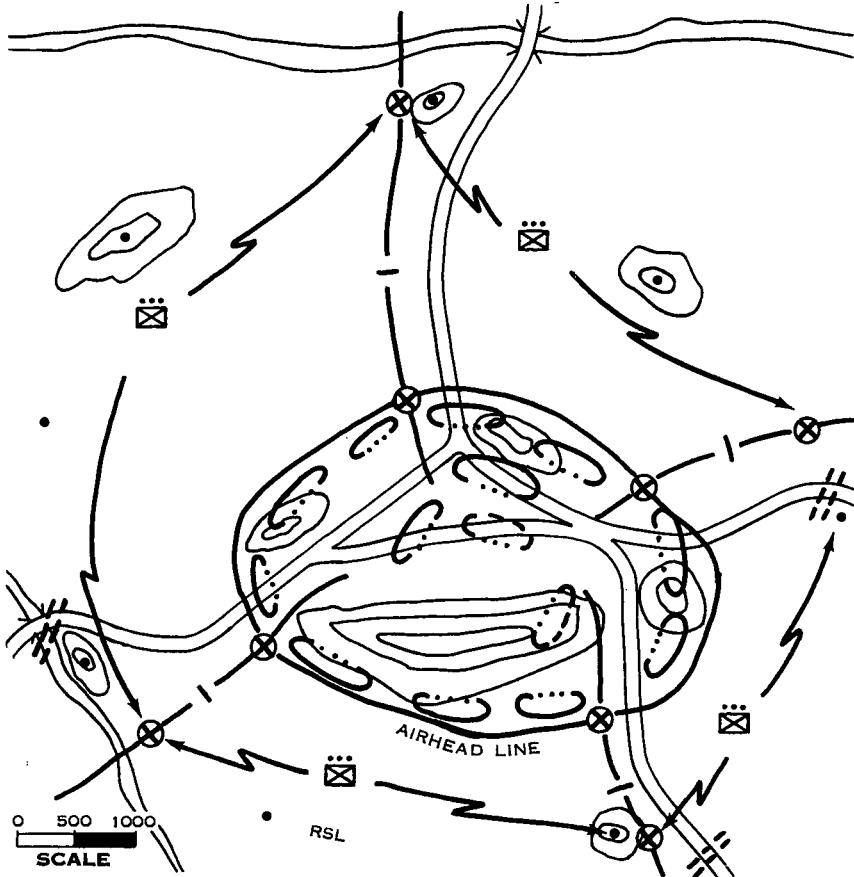
- (1) Depth of the operation.
- (2) Capabilities and limitations of fire support agencies.
- (3) Expected time for linkup.
- (4) Availability of logistical support.

## **48. Defense Plan**

*a.* Concurrently with planning for the seizure of the airhead, the commander considers his plan for defense. He applies the fundamentals of defense to the maximum extent possible. The defense of the objectives along the airhead line and the establishment of outposts, roadblocks, and observation posts along the RSL make up the framework for the defense plan (fig. 2).

*b.* The unit commander plans the minimum redisposition of subordinate units for the defense phase after the objectives have been seized. The unit normally defends employing the perimeter defense.

*c.* Where vulnerability to atomic attack is a major factor to consider in defense planning, the unit commander may achieve dispersion by expanding the airhead. For example, he may move a majority of his force out to occupy positions on the RSL and employ the R&S forces in the conduct of R&S missions beyond the expanded airhead.



*Figure 2. Defense plan.*

## 49. Fire Support Plan

### a. General.

- (1) The commander plans the fires to be delivered before the assault to neutralize enemy forces within the objective area as well as those to be delivered during and after the assault to support the maneuvering elements. He may have access to artillery, air, naval gunfire support, and deterrent fires delivered by the participating tactical transport aviation units. He must coordinate closely with fire support commanders while planning, because operations within the airhead may be decentralized and communications may be difficult to maintain. In addition to the fires in the objective area to support the attack and defense, the commander should develop plans for fires to clear and isolate the approach and return routes.

Fires planned within or near the flight corridor(s) and the airhead are carefully coordinated or restricted during air movement. Smoke may be delivered by artillery and aircraft to mark the flight routes, aid in navigation, and screen the air movement.

- (2) If no enemy forces are known to be in the objective area, or if it is lightly defended, the commander must weigh the advantages to be gained from the fires against the possible loss of surprise and/or damage to critical portions of the area.

*b. Artillery Support.*

- (1) When the airhead is within range of supporting artillery emplaced behind the line of contact, on call and scheduled fires may be planned to support the air movement and subsequent operations in the objective area. Flak suppression, both preplanned and on call, is given a high priority to assist the safe movement of the air column. Augmented communications from the airhead to the supporting artillery may be necessary.
- (2) The artillery that moves to the objective area with the assault echelon assists the assault forces in seizing objectives and clearing assigned sectors. In addition, it provides supporting fires to units occupying the RSL. To support the RSL, artillery units may be required to displace from central positions within the airhead to positions close behind or beyond the airhead line. This allows the artillery longer range fires to support the RSL and also to delay and disrupt enemy attacks. When units making up the security echelon withdraw, the artillery displaces again to support the defense of the airhead line. Fire direction is the same as during other ground operations.
- (3) Antiaircraft artillery support in an air defense and/or ground support role may be planned. The logistical problems involved in transporting antiaircraft artillery units as part of the assault echelon should be weighed against the availability of other air defense means.

*c. Supplementary Support.* When available, missile and naval gunfire support is planned to supplement artillery support. Naval gunfire spotting and liaison teams and guided missile observers accompany the assault echelon. Their scheduled fires are incorporated with primary and alternate plans so that the fires can be lifted or shifted as required.

*d. Air Support.*

- (1) Air escort en route to the objective area and during operations provides protection from enemy aircraft and facilitates the seizure of objectives and defense of the airhead. The air-landed force commander plans air strikes against enemy ground forces, particularly enemy armor, attempting to reach the airhead, as well as targets within the airhead. Air strikes are also requested in areas other than the objective area to aid deception and disrupt known or suspected enemy reserves.
- (2) Air support is scheduled for the duration of the operation to insure immediate execution of on-call strikes. An air coordinator, who flies continuously over the objective area, is required for the control of close air support in the initial stages of the assault. Air control teams (ACT) land with the assault echelon. Initially, requests for air strikes go directly from the ACT to the air coordinator, who allocates aircraft for the mission. The forward air controller with the ACT directs the strike. When centralized control is regained, requests are routed through the force headquarters where priorities are established, and the approved requests are relayed to the air coordinator. After linkup, requests are processed through normal channels. A system of visual signals is included in the air support plan to mark the position of friendly troops on the ground.
- (3) A bomb line (fig. 3) is designated around or beyond the airhead to become effective no later than the time when the first elements of the air-landed force arrive in the objective area. The bomb line is usually established along a series of easily identifiable terrain features beyond the RSL. It is located as close to the RSL as the terrain and requirements for ground reconnaissance beyond the RSL will permit.

*e. Deterrent Fires by Transport Aviation Units.* Participating transport aviation units may have the capability of employing deterrent fires during the air movement and before landing. These fires do not take the place of any of the other types of fires supporting the operation. They are delivered from the transport aircraft and must be carefully coordinated with all other supporting fires. Deterrent fires delivered during the air movement and just before landing discourage enemy small-arms and automatic weapons fire against the aircraft by forcing enemy personnel to take cover. The air-landed force commander coordinates the employment of deterrent fires with the operations of pathfinders and friendly units in the objective area and along the flight route.

*f. Atomic Support.*

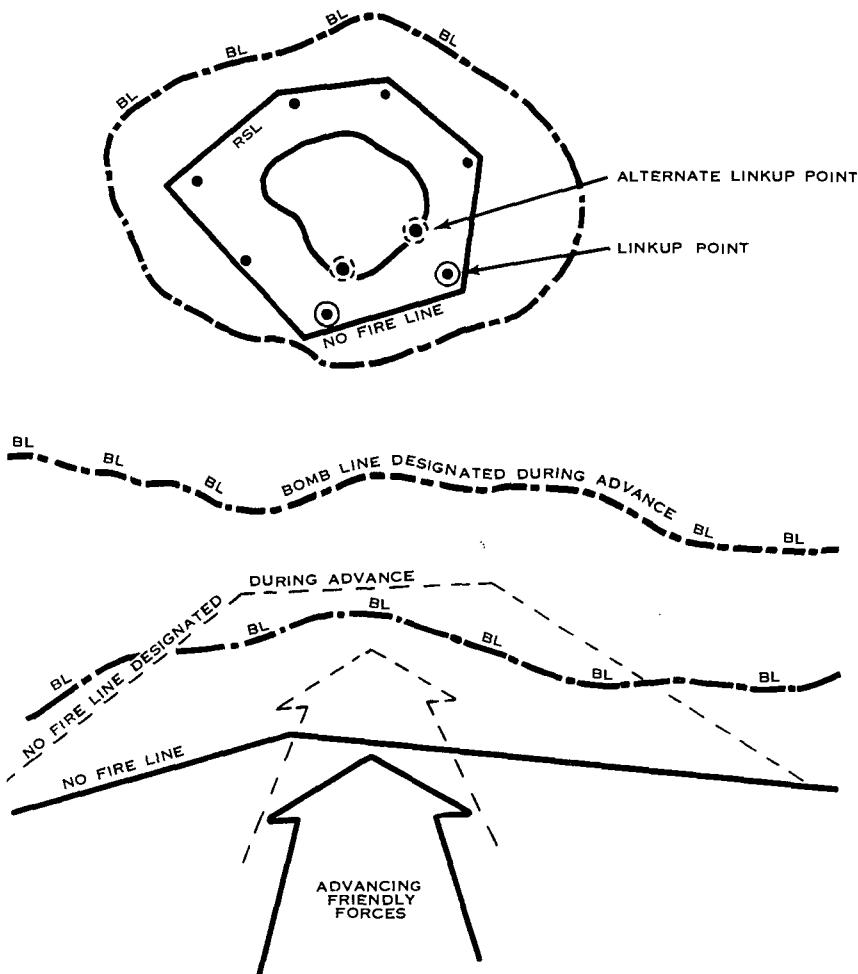
- (1) Atomic support, regardless of the method or time of delivery or the purpose of employment, is integrated into overall fire support plans. Like all fire support, it must be coordinated with the plan of maneuver and plan of defense. The results of atomic support should be exploited by planning an assault that can be swiftly executed to take advantage of the devastation and confusion, and by planning a counterattack to be executed if the atomic support is used in the defense of the airhead. Plans for the use of on-call atomic missions are thorough to insure prompt execution.
- (2) When atomic support is available, fewer troops may be required to accomplish the mission. The debris and fires created by atomic weapons should be considered in planning. Alternate plans should be developed for use in the event atomic support is planned but not carried out.
- (3) The offensive use of atomic weapons permits greater dispersion of friendly forces, thus decreasing vulnerability to enemy atomic attack.
- (4) The effects of supporting atomic fires on friendly aircraft in flight and the effects of debris, fire, and radiation on the tactical plan must be considered.

## **50. Ground Linkup Plan**

Plans for the juncture of forces in the airhead and advancing friendly ground forces (fig. 3) are coordinated in advance. They include—

- a. The assumption of command (fig. 4). (The transported force may become attached to the linkup force or both forces may come or remain under control of a higher commander.)*
- b. Command and staff liaison, before and during the operation (this may be facilitated by the use of aircraft).*
- c. A system of mutual recognition (arm bands, pyrotechnics, vehicle markings, panels).*
- d. Coordination of communication plans (exchange of call signs and radio frequencies, and exchange of radios, if required).*
- e. Coordination of plans of maneuver (establishment of linkup points; delineation of objectives and boundaries or axes of advance).*
- f. Coordination of fires, including—*
  - (1) Bomb lines (par. 49d(3)).*

- (2) Exchange of locations of no fire lines. A no fire line (NFL) is planned in front of each force for the coordination and control of the fires of indirect fire weapons. The linkup force will not fire in the area enclosed by the NFL established for the airhead without obtaining clearance from the artillery in direct support of the airhead. Similarly, indirect fire weapons within the airhead will not fire beyond the NFL established by the linkup force without obtaining clearance from the artillery in direct support of the linkup force. When the NFL of the advancing ground force merges with the airhead NFL, the common NFL is used by both forces.



*Figure 3.* Coordination for linkup.

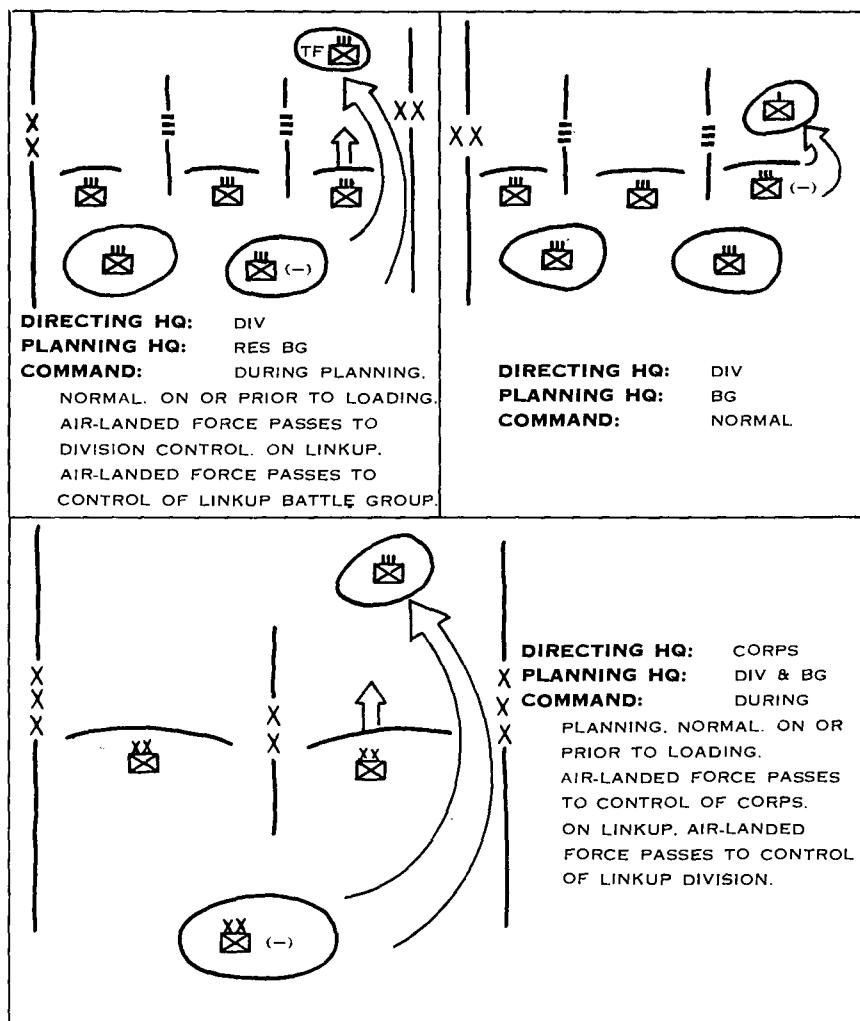


Figure 4. Examples of command in air-landed operations.

g. Action by forces within the airhead to assist advancing linkup forces. This assistance is given by reserving areas within the airhead for reorganization of the linkup forces, by providing guides, and by removing obstacles that were established to hinder enemy movement.

## 51. Communication Planning

Communication considerations must be integrated into the planning process at the start of the planning phase. Plans should include a breakdown of the communication equipment and person-

nel to accompany the assault and followup echelons. Particular attention is given to the transportability of equipment and the dispersal of key personnel and equipment when preparing air movement and loading tables. When needed, additional equipment is obtained from higher headquarters. Plans should be made for the following:

*a. Communication in Loading Area.* Normally, wire and messenger are the primary means of communication in the loading area. Radio, other than stations used for deception, usually is not employed because of security requirements. Panels and public address equipment can be used at loading sites to control aircraft movement as well as loading. The communication equipment and operating personnel may be obtained from the followup echelon.

*b. Communication for Movement Control.*

- (1) Control of movement is necessary to provide precise timing and execution of the operation. Plans are prepared to insure communication between control personnel and the following:
  - (a) The loading area.
  - (b) The objective area.
  - (c) The aviation unit
  - (d) Aircraft in flight.
  - (e) The unit FSC.
  - (f) The unit command post.
- (2) The supporting transport aviation unit commander provides a liaison officer for movement control and augments the supported unit communication facilities with the necessary equipment to communicate with the aviation unit command post and the aircraft in flight. An airborne coordinator or radio relay stations (either ground or airborne installations) may be used to help coordinate fire support and control aircraft in flight. See paragraphs 58g and 94 through 96.

*c. Communications in the Objective Area.*

- (1) For effective control of ground operations, communications must be established as the air-transported elements begin to arrive in the combat area. Enough communication personnel and equipment are moved into the air-head early in the assault to insure the timely installation of vital communications for the command post. The communication system is then developed by successive steps to meet the commander's requirements. Simultaneously, an electronic navigational aids system is devel-

oped as required, using personnel and equipment brought in for this purpose.

- (2) The following communication is necessary for effective command control:
  - (a) Immediate establishment of command and fire control channels.
  - (b) Communication with supporting artillery, air, and naval forces.
  - (c) Communication with Army aviation units concerned with aerial observation, reconnaissance, buildup, air supply, and air evacuation.
  - (d) Communication with bases in friendly territory.
  - (e) Communication with other forces (including linkup forces) with a common or coordinated mission.
  - (f) Communication with higher headquarters (app. III).

## **52. Alternate Plans**

- a. Alternate plans are prepared and used in the event that—
  - (1) Any part of the force fails in its particular mission.
  - (2) Communication is disrupted.
  - (3) Atomic weapons are used by either side.
  - (4) Enemy action precludes the use of designated approach and return routes, or landing zones and sites.
  - (5) Weather conditions or enemy action interfere with landings.
  - (6) Withdrawal from the airhead becomes necessary or desirable.
  - (7) Reinforcement of the airhead becomes profitable.
- b. Means are provided for communicating the decision to execute an alternate plan.

## **Section IV. LANDING PLAN**

### **53. General**

- a. The landing plan is based on the plan of maneuver. It indicates the sequence, time, and place of arrival of troops and materiel in the airhead and the control measures to be used. The order in which units land, the time of landing, and the landing zones and sites designated are based on the recommendations of subordinate unit commanders and the aviation unit commander. Alternate plans are provided in the event it is necessary to change or abandon the preferred landing plan.

b. Unless the tactical plan, adequacy of landing zones, or availability of aircraft dictate otherwise, the force commander arranges for units within the assault echelon to land simultaneously. Units that are to seize critical objectives land first. When the entire force cannot be transported simultaneously, units are shuttled to the objective area in subsequent multiple lifts with those units least critical to the initial assault having low priority.

#### **54. Landing Zones**

a. Concurrently with the development of the ground tactical plan, the air-transported force intelligence officer and the transport aviation unit intelligence officer recommend usable landing zones (fig. 5). The capacity (number of aircraft landing simultaneously) of each is established. The force commander designates which of the recommended landing zones will be used and establishes priorities for the landings of major subordinate units. He also selects alternate landing zones. All landing zones are selected to provide the best disposition of units for seizing objectives.

b. Units normally are landed in their assigned sectors; however, if there are not enough landing zones in their sectors, some of the units may land in the sector assigned to another unit.

c. Assault forces land on or as close to their objectives as the terrain and enemy situation permit.

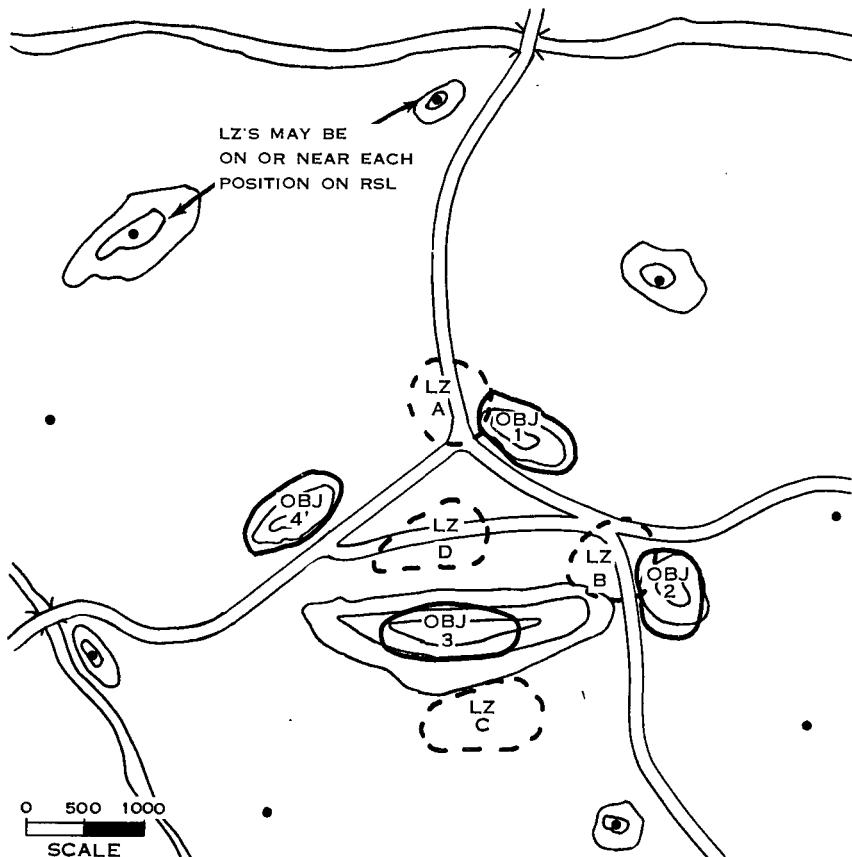
d. Other desirable characteristics of landing zones include—

- (1) Ease of identification from the air under expected conditions of visibility.
- (2) Cover and concealment close to landing zones.
- (3) Relative freedom from obstacles and antiaircraft defenses.
- (4) Nearness to dominating terrain, covered routes of approach to objectives, good road nets, and terrain favorable for defense against armored attack.

e. The transported force commander may designate that certain initial assault units secure their landing zones for subsequent landings. The size of landing zone security elements is determined by the size of the zones, their location within the airhead, and the threat of enemy intervention.

#### **55. Landing Sites and Landing Strips**

a. After the transport aviation unit commander and subordinate unit commanders have recommended actions, the transported unit commander selects landing sites and landing strips (fig. 6) within the landing zones which will favorably dispose his troops



*Figure 5. Selection of landing zones.*

for seizing the initial objectives. Sites and strips should be far enough apart to prevent aircraft from landing in overlapping patterns and to insure accurate terrain orientation on the part of pilots and transported troops.

*b.* In certain types of terrain, such as wooded and mountainous areas, the capacities of landing sites may have to be determined in the same manner as for landing zones. The capacity of a landing site will determine the maximum size of any flight unit whose aircraft are to land there simultaneously. It may be necessary to land two or more flight units successively on the same landing site in order to place troops on the landing site best located for accomplishing their missions. In terrain which does not restrict the landing of helicopters, the size of a landing site is determined by the number and formation of the helicopters landing there.

*c.* Landing strips may be prepared strips which have been cleared, leveled, and graded; or they may be unprepared strips in

open fields, along stretches of road, or in other areas suitable for the landing and takeoff of fixed-wing aircraft. The capacity of the strip is determined by the space available for parking and loading or unloading aircraft.

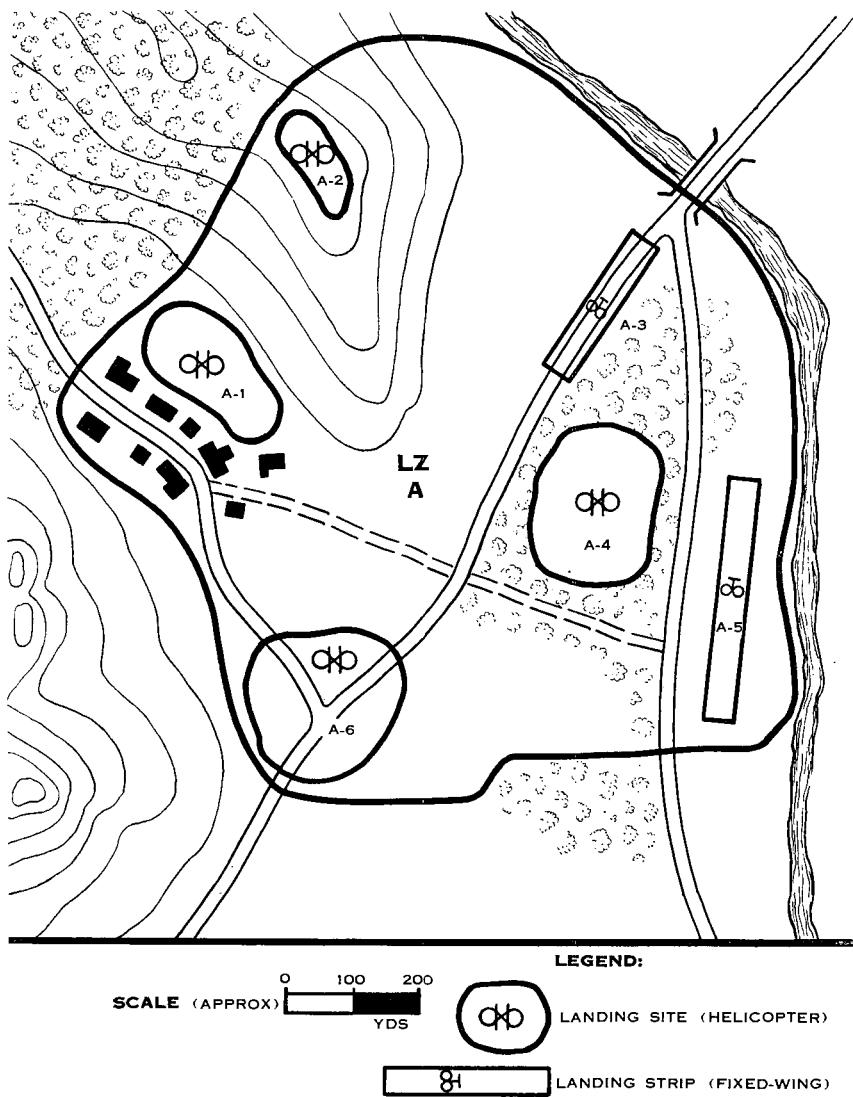


Figure 6. Landing sites and strips.

## 56. Assembly Areas

a. After selecting landing sites (strips), the unit commanders of the transported force may select assembly areas. If the landing is made during daylight and a particular unit's landing zone

is on or close to its objective, there may be no need for an assembly area. The same may be true for a unit whose troops advance on an objective from more than one direction—to seize both ends of a bridge, for example; or for a unit whose troops land at various time intervals.

*b.* Situations that may require assembly areas include landings at night, landings distant from objectives, and operations that require units to regroup to attack objectives occupied by the enemy. If units must assemble for further movement after landing, unit commanders select areas that are—

- (1) In the direction of the unit's objective.
- (2) Adjacent to the unit's landing zone or landing site (strip), but clear of all other landing areas of other units.
- (3) Concealed from enemy ground and air observation and that afford cover from direct fire.

*c.* There may be enough cover and concealment in large landing zones to permit units to select assembly areas adjacent to their landing sites (strips). In other circumstances, units may have to select areas so far from their landing sites (strips) that they must completely clear their landing zones to reach them. For assembly techniques, see appendix VII.

## **Section V. AIR MOVEMENT PLAN**

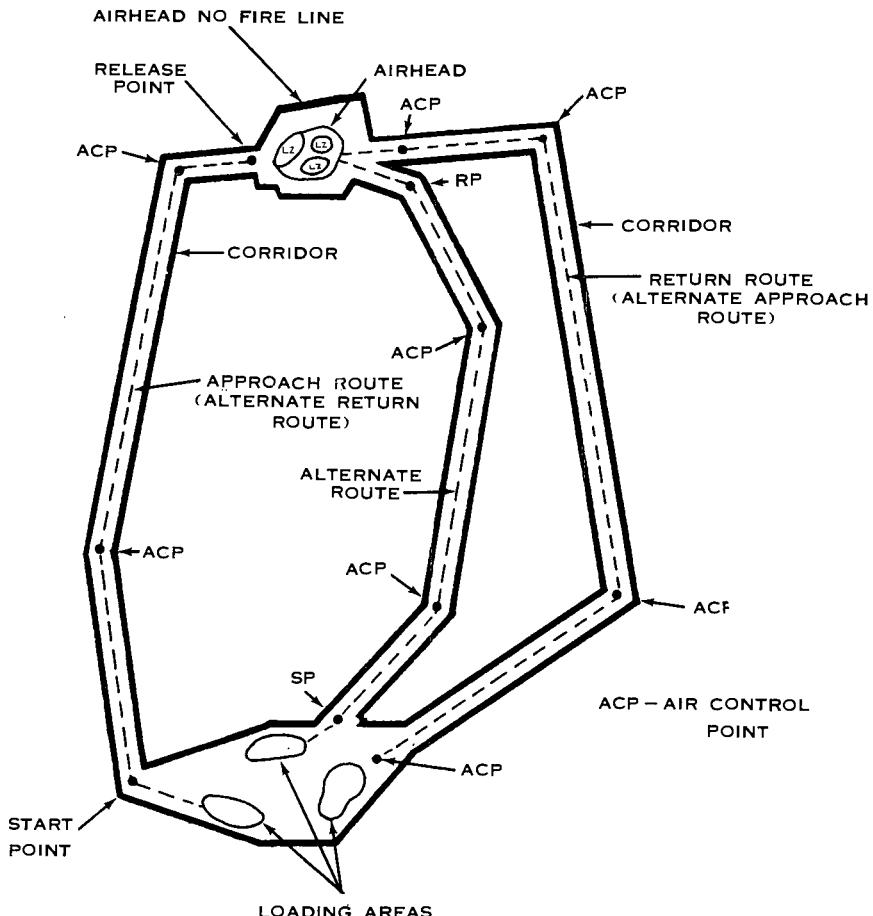
### **57. General**

The amount of detail required in the movement plan to insure its successful execution depends on the size of the force and the scope of the operation. This plan contains the instructions that subordinate units need to execute the movement in the desired manner and may include the preparation of the—

- a.* Flight plan.
- b.* Air movement table.
- c.* Air loading table.
- d.* Flight manifest.

### **58. Flight Plan**

The first step in the development of the air movement plan is to prepare a flight plan that will insure that the air-landed force arrives in the objective area at the time and in the formation best suited to the landing plan and ground tactical plan. The flight plan prescribes the approach and return routes (fig. 7); the formation, altitude, and speed to be flown; and the means of flight control.



*Figure 7. Flight routes.*

a. *Approach and Return Routes.* Many possible routes are studied and the desirability of using multiple routes is considered. Major considerations which influence the selection of flight routes are the—

- (1) *Ability of the enemy to detect the movement.* Transport aircraft can best avoid detection by flying at low altitudes and by taking advantage of defilade and concealment in flight. Helicopters can take advantage of periods of reduced visibility to screen movements. Detection and interference by the enemy will be influenced by the length of time the transported force is passing over enemy territory. Shutting, or moving a long air column over a single route, may make the transported force too vulnerable to enemy detection and interference.

Multiple routes may be necessary to reduce this vulnerability.

- (2) *Location of enemy forces.* Whenever practicable, transport aircraft will not fly over or near known enemy antiaircraft weapons and troop concentrations.
- (3) *Capability of supporting weapons.* The capability of air and ground supporting weapons to reduce or destroy the enemy's ability to interfere with the air movement must be considered.
- (4) *Restriction on friendly fires.* Friendly fires must be controlled to keep them from inflicting damage on the aircraft. A flight corridor extending from the loading area to the airhead no fire line is therefore prescribed and all fires within the corridor are coordinated or restricted. The width of a corridor may vary with each operation. It depends on the aircraft formation, the type aircraft, the terrain, visibility and weather, the length of the corridor, and navigation facilities. It is desirable to choose a corridor that will require the least possible restriction of the fires of friendly forces. When a return route is not the same as the approach route, an additional flight corridor is designated. This may cause further restriction of friendly fires.
- (5) *Ease of navigation.* Flight routes may follow recognizable terrain such as rivers, natural corridors, railroads, and roads, as an aid to navigation.

*b. Multiple Routes.* Multiple routes reduce the length of time required for the transported force to pass over enemy territory and increase the enemy's difficulties in concentrating fires against it. They permit large formations to move to the objective area and land simultaneously. However, multiple routes increase difficulties of flight control and coordination of friendly fires with the air movement.

*c. Alternate Routes.* Alternate routes are planned to take into account—

- (1) Last minute intelligence of weather, enemy, and terrain.
- (2) A change in landing plans.
- (3) A change in the fire support plan which increases or reduces the effectiveness of fires during the approach flight.

*d. Flight Serial and Flight Unit Composition.* The organization of the available aircraft into flight serials and flight units is based on the landing plan. In preparing the landing plan, the ground force commander organizes the transported unit into

smaller units of varying strengths to be delivered to specific landing zones and sites (strips). Flight units are then organized to provide the number of aircraft required to deliver each of the smaller transported units to its designated landing site (strip). The number of aircraft in the flight units may also be influenced by the capacities of the landing sites (strips). Flight serials are organized so that each one includes those flight units which are to move together in the air column. Tactical integrity of the transported units is maintained within flight serials and flight units to the extent practicable.

*e. Aircraft Formations.* The formation of flight serials and flight units are dictated by a variety of considerations both tactical and technical. Tactical considerations include the landing plan, and dispersion of aircraft for protection from enemy detection and fires. Technical considerations include the type of aircraft, flight altitude and speed, visibility conditions, type of terrain, and the

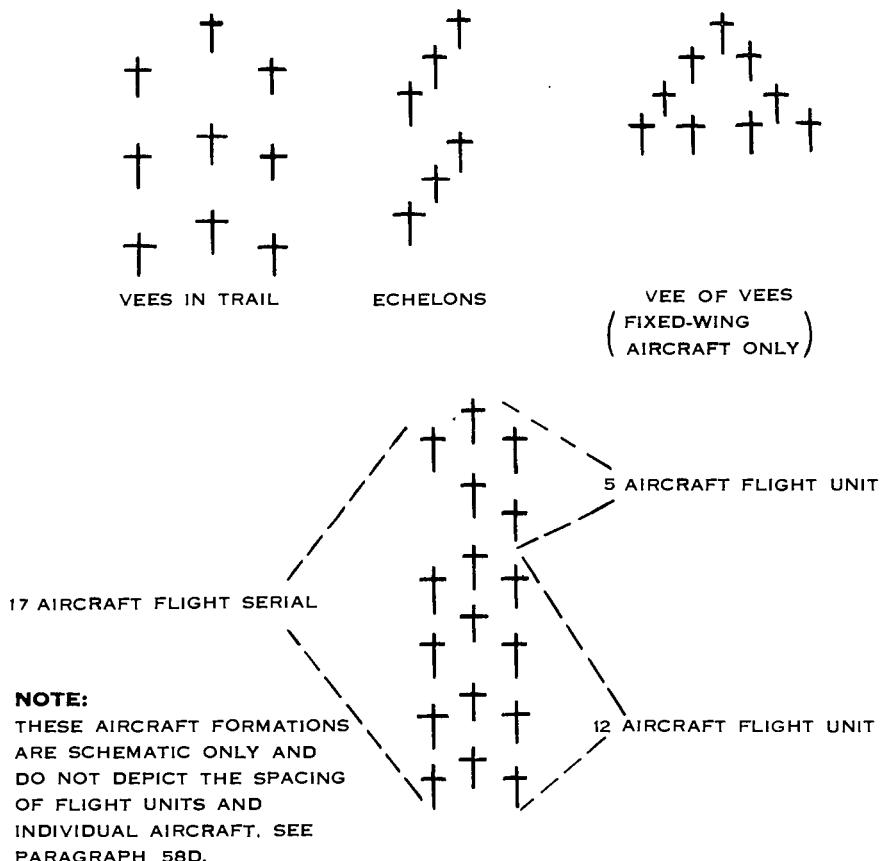


Figure 8. Typical aircraft formations.

degree of skill of the pilots. Typical aircraft formations are illustrated in figure 8.

*f. Altitude.* Two conflicting considerations affect the selection of the altitude to be flown: high altitude to reduce the effect of enemy small-arms fire, and low altitude to reduce the enemy's capability of detecting the movement and placing long-range, large caliber weapons fire on the aircraft in flight. Transport aircraft can take advantage of terrain masks on either side of the flight route to gain protection from small-arms fire, antiaircraft fire, and long-range detection devices such as radar. Aircraft normally fly at the lowest altitude above the terrain within technical safety requirements. When the same route is prescribed for both approach and return flights, different inbound and outbound altitudes may be specified, a wider corridor may be established, or flights may be conducted on a close time schedule to avoid congestion and the possibility of collision.

*g. Flight Speeds.* The prescribed speed to be flown depends on the type aircraft and the formation. To reduce the flight time over enemy-occupied terrain, the aircraft normally fly at the rated cruising speed. Helicopters retain in-flight flexibility and maneuverability even at high speeds. When two or more types of aircraft fly in one serial, the commander may have all types fly at the speed of the slowest, provided the faster aircraft may operate safely at the reduced speed.

*h. Movement Control.* The control required to insure accurate delivery with the precise timing desired depends on the number of aircraft, flight formation, time of movement, visibility, complexity of the route(s), and the experience of the pilots. The transported force commander has control of the routing and movement of all his personnel, supplies, and equipment. The following means are employed to control the movement:

- (1) The air-transported force S3 or his representative coordinates and controls all movements to insure that the movement plan is executed in the desired manner. He maintains communication with the transport aviation unit commander, fire support coordinator, landing sites in the assembly area, the objective area, and the aircraft while in flight (through the aviation unit commander). Communication equipment required for ground-to-air communication is organic equipment of the supported unit; however, during operations it should be supplemented by the aviation unit commander.
- (2) A minimum of two control points is designated along flight routes; an initial point (IP) near the loading area

and a release point (RP) near the airhead. Landmarks used as navigational aids may serve as additional control points (checkpoints).

- (3) Pathfinder personnel (teams) assist in the control of aircraft landings and takeoffs in the airhead (app. V).

## **59. Air Movement Table**

The air movement table form (app. IV) is designed to facilitate movement planning. When completed, the table gives the executing units detailed instructions pertaining to flight serial composition, the number of aircraft allotted, appropriate times, loading areas, and landing zones. It is published as an annex to the operation order or as an appendix to the air movement plan annex.

## **60. Air Loading Table**

Based on information in the air movement table, the commander can complete the air loading table (app. IV) which gives instructions to subordinate units in a convenient form. This table may be issued as an annex to the operation order or an appendix to an air movement plan annex, if one is published. The completed table complements the operation order by insuring that the flight serial is organized and loaded in a manner best suited to the mission.

## **61. Flight Manifest**

The flight manifest (app. IV) is a record of personnel (by name, grade, and service number) transported in each aircraft. It also gives a brief description of the equipment loaded. It is prepared at company level and authenticated by the troop commander of each aircraft.

# **Section VI. LOADING PLAN**

## **62. General**

a. The loading plan normally is published as an annex to the operation order. It is developed immediately following the preparation of the air movement plan.

b. The amount of detail required in the loading plan is in direct proportion to the size and composition of the force, the experience of participating personnel, the availability of suitable loading areas, and the complexity of the air movement plan on which the loading plan is based.

c. Routine loading instructions are included in the unit SOP (app. X).

*d.* The loading plan annex for large-scale operations may include the following:

- (1) A preparation schedule for units in their original assembly area prior to movement to loading areas. This move is avoided when possible, as stated in paragraph 64.
- (2) The designation of the loading area (includes specific assembly areas and loading sites), together with required control personnel (par. 67a).
- (3) A movement table for the move to the loading areas (if required).
- (4) A schedule of activities in the assembly areas within the loading areas.

### **63. Preparation in Original Assembly Area**

Instructions concerning the preparations that units must complete before moving to loading areas may be issued in fragmentary form. These preparatory activities can be expedited by referring to an SOP with which subordinate units are familiar. If time permits, a detailed schedule is issued to insure that enough time is allocated to complete each activity in the sequence desired.

### **64. Designation of Loading Area**

To avoid unnecessary moves by ground units, the loading areas are as close as possible to the current location of troops. Assembly areas and loading sites are designated within the loading areas for each subordinate unit and are shown on an overlay sketch (fig. 9). Loading sites are defined, when possible, by easily recognizable terrain features and are marked for easy identification.

### **65. Movement Table**

When the transported unit is required to move to loading areas, a movement table may be issued (app. III). It prescribes the priority for the movement of subordinate units, supplies, and equipment, based on the time required for loading and the scheduled time for takeoff.

### **66. Schedule of Activities in Loading Areas**

To insure that final preparations are completed before takeoff, a schedule of activities in the loading areas is issued (par. 89).

### **67. Loading Control**

*a.* The force commander for each loading area makes provisions for loading control. He assigns enough men to supervise loading activities and insure that loading is accomplished expeditiously.

b. Specific loading instructions may be included in the loading plan or issued as a separate directive, as required (pars. 88-93).

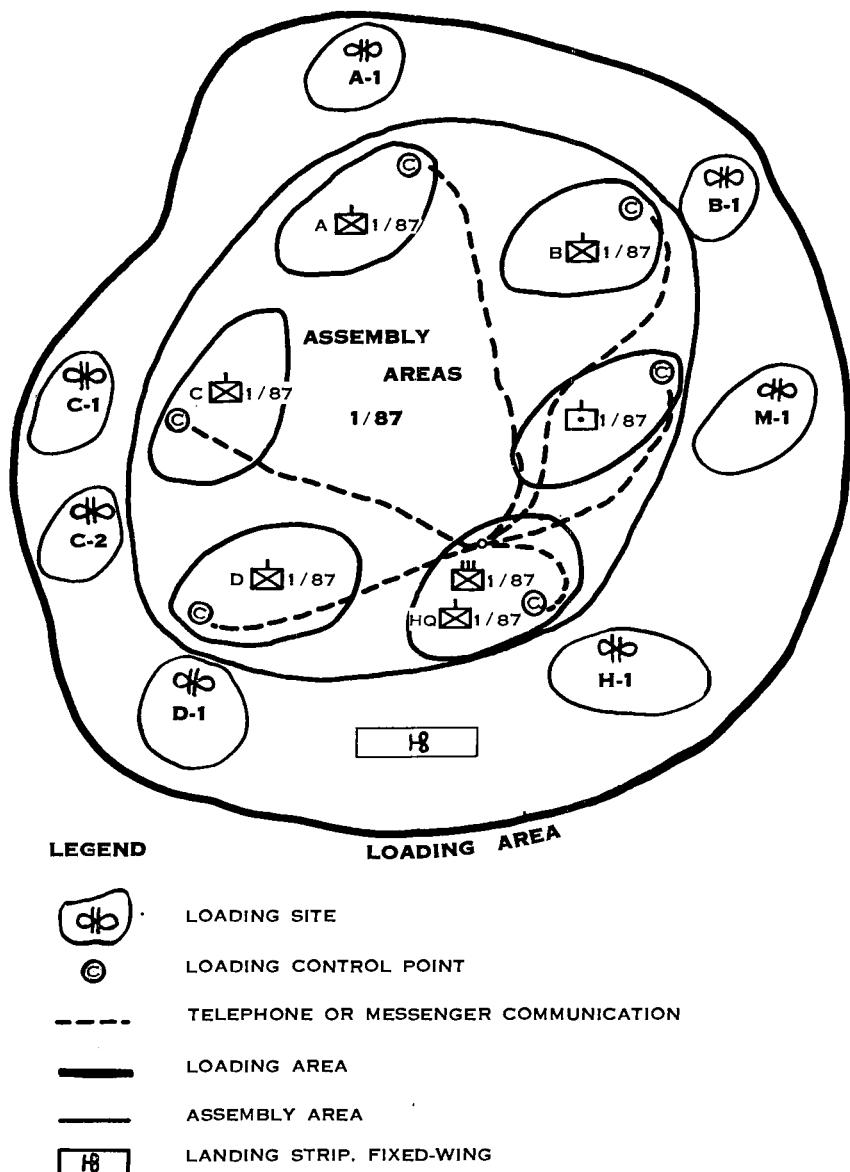


Figure 9. Battle group loading area.

## CHAPTER 4

### ADMINISTRATIVE PLANNING

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#### Section I. PERSONNEL

##### **68. Organization and Planning**

a. The planning of an air-landed operation poses all the personnel problems common to other types of operation. Due to the nature of the operation, however, many of the personnel functions must be decentralized and delegated to subordinate units, especially during the assault phase. These functions are discussed in paragraphs 69 through 78.

b. Unit personnel sections normally remain at the division administration center. Only a minimum workable number of men from the S1 section of a battle group is assigned to the assault echelon. Those remaining with the followup echelon perform the administrative duties necessary to support and assist the assault echelon until linkup.

##### **69. Personnel Functions**

a. *Strengths.* When a unit receives a warning order that it is going to participate in an air-landed operation, the unit S1 must obtain the strength of each participating subordinate unit so that space requirements can be planned. This information is submitted to the unit S3 as soon as possible.

b. *Flight Manifest.* See paragraph 61 and appendix IV. The troop commander of each aircraft is responsible for the accuracy of the flight manifest for his own aircraft.

c. *Strength Messages.* Each unit in the objective area submits a strength message as soon as possible to higher headquarters noting any personnel losses incurred during the flight from the loading area to the objective area. After this initial strength report, unit standing operating procedure is followed in submitting "feeder" type morning reports, the personnel daily summary, and daily strength messages.

d. *Casualty Reports.* Casualty reports are prepared as soon as possible and forwarded to the unit personnel section.

## **70. Replacements**

Normally, replacements will not be received by an air-transported force during the conduct of an operation. They should be received and integrated into companies of the assault echelon at least 24 hours before the operation begins. If this is not possible, the unit submits a request to the division replacement company to hold the replacements until the operation is completed.

## **71. Discipline, Law, and Order**

Each unit of the assault echelon controls stragglers. Since straggling to the rear does not exist, battle group and company plans for straggler control include—

- a. Instructions to the troops in each aircraft to join temporarily with the first friendly unit encountered in the objective area if their aircraft does not land in its assigned landing zone.
- b. Instructions to all units to integrate stragglers from other units until it is practicable to release them to their parent unit. These integrations and releases are reported promptly to the next higher headquarters.

## **72. Prisoners of War**

Normally, only key prisoners of war, as designated by the unit S2, will be evacuated from the objective area during the assault phase.

## **73. Graves Registration**

During the initial stages of the operation, evacuation may be delayed at all echelons until the situation is stabilized and linkup has been effected. Recovery and disposition personnel normally accompany the followup echelon.

## **74. Personnel Services and Morale**

Normally, mail is not delivered to an assault echelon until linkup is effected.

## **75. Civil Affairs/Military Government**

Civil affairs/military government functional teams may be attached to the assault echelon when necessary to assist the commander in these activities.

## **76. Interior Management**

- a. The flag locations of command posts of subordinate units are designated in the planning phase of the operation. Enough administrative and communication personnel should accompany the

assault echelon to immediately establish command posts and communication within the objective area.

b. As soon as the command post is established in the objective area in a linkup type operation, the command post in the departure area closes and its personnel joins the followup echelon.

## **77. Personnel Procedures**

So far as possible, normal personnel procedures are followed without change.

## **78. Civilian Personnel**

Indigenous civilians within the objective area should be used to assist the assault force, within the limitations imposed by the Geneva Conventions.

# **Section II. LOGISTICS**

## **79. General**

Air-landed operations require, in addition to normal detailed logistical planning, consideration of the following special factors:

- a. The characteristics of the proposed airhead, including road nets, transportation, water sources, local utilities, evacuation and hospitalization, and other similar factors.
- b. The time between the assault landing and linkup or displacement.
- c. The supplies and equipment available within the airhead.
- d. The requirement for special or unusual logistic support.
- e. The type of distribution to be made from the airhead to assault units forward.
- f. The number and type of aircraft available for supply purposes.
- g. The tactical loading requirements for personnel and equipment.
- h. The specific weights of heavy items of equipment.
- i. The location and capacity of loading areas.
- j. The troops and equipment to be loaded in each loading area.
- k. The time and distance between the loading area and landing zone.
- l. The organization and method of movement of the followup echelon.
- m. The logistical support required by supporting transport aviation units.
- n. The recent experiences of other units in air-landed operations.

- o. The construction and demolition tasks to be performed in the proposed airhead.

## 80. Supply

a. *General.* The quantity and types of supplies and equipment carried are dictated by the initial combat requirements; the availability and carrying capacity of aircraft; the projected time of linkup of ground forces or the time that resupply by normal means can be resumed; the anticipated weather; and enemy capabilities. Each soldier and each subordinate unit of the assault force should carry enough supplies to sustain them until they can be resupplied. Adequate additional supplies should be maintained in the airhead at all times to replace expended assault supplies.

b. *Categories of Supply.* The categories of supply are assault supply and followup supply. Procedures employed vary with the category of supply being delivered.

- (1) Assault supplies are those of all classes that accompany the assault elements into the objective area. Units carry enough assault supplies to sustain their operations until followup supplies can be delivered. Assault supplies are carried on the individual and on unit vehicles, and are bulk loaded in aircraft of the assault echelon (additional supplies).
- (2) Followup supplies are delivered by aircraft to units or to the supply and service area in the airhead. These supplies are requisitioned and held in readiness to meet anticipated requirements. Plans for loading supplies should assure priority delivery of most needed items. Each load should be diversified so that the loss of one aircraft will not result in the total loss of any one item of supply. Civilian labor within the airhead should be used to help distribute these supplies. Followup supplies are of two types:
  - (a) *Automatic.* Automatic followup supplies are delivered to units in the airhead on a preplanned schedule, the quantities and times of delivery depending on the situation. Delivery is stopped as soon as practical or after linkup.
  - (b) *On-call.* On-call supplies are held in readiness at a loading area to provide for emergencies throughout the operation. They are delivered to units in the airhead on a request basis. Classes I, III, and V are stocked by type of packet to meet the anticipated daily requirements, and a small quantity of critical items in classes

II and IV should be stocked to meet emergency requests. On-call followup supplies are reconstituted immediately as they are used.

*c. Special Supplies and Equipment.* Additions, deletions, and substitutions in standard equipment and prescribed loads of units and individuals may be made for air-landed operations. For example, recoilless rifles with prime movers may be substituted for tanks and assault guns, and  $\frac{1}{4}$ -ton trucks and/or mechanical mules (XM 274) for  $\frac{3}{4}$ -ton and  $2\frac{1}{2}$ -ton trucks.

*d. Type of Loading.*

- (1) The assault echelon is combat loaded so that equipment and supplies needed on landing are readily accessible. In combat loading, assault supplies are distributed among the aircraft so that units can be self-sustaining on landing. Particularly critical equipment may be duplicated to safeguard against loss or damage.
- (2) Initially, followup supplies are distributed by class and item among delivering aircraft to prevent the possible total loss of one class or item if one or more aircraft are lost en route. However, when the supply situation is not critical, followup supplies may be loaded by classes so far as practicable to facilitate loading, unloading, handling, and delivery in the airhead.

*e. Methods of Delivery.* Supplies may be air-landed or dropped by parachute from helicopters or fixed-wing aircraft.

*f. Supply By Classes.*

- (1) *Class I.* The assault echelon carries enough assault and individual combat rations to last until followup supply arrives.
- (2) *Class II.* The assault echelon carries only the minimum spare parts. Essential class II items are included in followup supply.
- (3) *Class III.* The fuel tanks of vehicles are filled to the safe level and additional fuel and lubricants are carried in each vehicle. Followup supply includes fuel and lubricants.
- (4) *Class IV.* The amount of class IV supply brought into the airhead is limited; consequently, resources within the airhead are exploited to the fullest extent.
- (5) *Class V.* The amounts and types of class V assault supply vary with each operation. A load is prescribed, based upon the degree of opposition expected during and after the landing, the number and type of weapons with the assault echelon and requirements for bulk allotment items,

the time followup supply can be expected, and experience factors. Followup supply includes all types of class V supply in sufficient quantities to allow continuity of combat operations. The enemy opposition encountered in the airhead frequently requires changes in the amounts and types of followup supply preplanned for delivery.

(6) *Miscellaneous.*

- (a) Probable water supply points are predesignated.
- (b) Salvage and excess supplies are evacuated through normal supply channels.
- (c) Captured and abandoned enemy material is used according to the limitations prescribed by technical services.

## **81. Evacuation and Hospitalization**

- a. Medical elements, with liaison personnel from supporting medical units, are moved into the airhead to establish a normal chain of evacuation.
- b. Casualties are evacuated by aircraft as expeditiously as possible.
- c. Medical holding facilities may be established at suitable landing sites.
- d. The division may need to augment the medical facilities in order to care for nontransportable wounded in large-scale operations.

## **82. Transportation**

- a. Before linkup, air-transported forces are dependent upon air lines of communication. The flight and landing characteristics of Army fixed-wing aircraft and helicopters are exploited to deliver supplies close to using units.
- b. Surface means of transportation are more limited than in other ground operations, so available motor transport normally is pooled, along with usable enemy military and civilian motor vehicles found within the airhead.

## **83. Service**

- a. *Service Troops.* A minimum of service personnel accompany the assault echelon. Depending upon the nature and duration of the operation, additional service personnel are moved into the airhead as required. Many essential services can be performed in the rear area.
- b. *Maintenance.* To minimize maintenance requirements in the airhead, intensive maintenance is performed prior to departure.

*c. Movement Control.* After the assault echelon has moved into the airhead, the movement of troops and supplies between the loading area and the airhead is normally supervised by the S4. Based on the air movement plan, the S4 establishes priorities and allocates the available air lift to units.

# **CHAPTER 5**

## **CONDUCT OF AIR-LANDED OPERATIONS**

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### **Section I. GENERAL**

#### **84. General**

This chapter describes the seizure and defense of an airhead in hostile territory by an air-transported infantry division battle group in conjunction with a ground attack designed to effect an early linkup with the air-landed force. The tactical principles, phases of the operation, and conduct of the assault described apply generally to all Army air-landed operations. See chapter 6 for a discussion of other types of operations that may be conducted by air-landed forces.

#### **85. Tactical Principles**

- a.** Air-landed operations are conducted in mass with emphasis on mobility, surprise, and speed. Tactical surprise is achieved through the aircraft's ability to deliver assault forces by air directly upon or immediately adjacent to the objectives. Aggressive ground attacks exploit surprise by the prompt seizure of initial objectives. The rapidity of the attack reduces vulnerability to enemy counteraction, including his use of mass destruction weapons.
- b.** Air-landed forces are not employed on missions that can be performed as expeditiously and effectively by other forces or weapons.
- c.** Air-landed assaults usually are made in areas where strong enemy defense and large organized combat units are not initially present or where they have been neutralized.
- d.** Unity of command throughout the operation is essential.
- e.** The limited ground mobility and firepower of the air-transported force in the airhead necessitates special measures to reduce the vulnerability of the force to enemy armor.
- f.** Air-landed operations are usually conducted in conjunction with a ground attack to effect an early linkup with the airhead.

## **86. Decentralization of Control**

In the assault, control is decentralized and subordinate units are relied on to seize initial objectives or perform initial tasks rapidly by independent action. Communication must be established before successive, higher commanders can resume effective centralized control over their forces.

## **87. Logistical Considerations**

Freedom of maneuver of the force may be restricted when it has to protect landing zones for the delivery of additional troops, supplies, and equipment, and for the evacuation of casualties. This restriction is less pronounced in helicopterborne operations than in other air-landed operations due to the greater flexibility of the helicopter in the use of landing areas. Throughout the operation, aircraft can continue to deliver troops, supplies, and equipment direct to frontline units, thus avoiding the necessity for stocking supplies on vulnerable landing strips or landing zones.

## **Section II. LOADING AREA**

### **88. General**

a. Loading is conducted according to the previously prepared air movement plan and air loading tables. Loading SOP's (app. X) facilitate a rapid and orderly launching of an operation under maximum security.

b. Aircraft are loaded in the minimum possible time. Because of the requirement for security and the threat of nuclear weapons, as well as conventional types, all elements of the force must be dispersed and maximum preparations completed before the aircraft arrive at the loading sites.

c. The followup echelon supports the assault echelon with logistical and administrative services in every way possible during the loading phase. The next higher headquarters provides additional support on request.

d. The transported unit operations officer has the primary responsibility for developing loading plans and supervising the loading. He is the coordinating staff officer for all plans affecting loading.

### **89. Preparation**

The following is completed prior to loading:

a. Personnel and equipment are physically separated into assault and followup echelons by unit.

- b. Major items of equipment are prepared for the operation. Supplies that are to accompany the assault echelon are procured, packed (when necessary), and prepared for delivery direct to loading sites. Personnel, equipment, and supplies are grouped into individual aircraft loads while in the assembly area.
- c. Individual clothing and equipment and unit equipment not needed in the airhead are left with the followup echelon.
- d. Followup supplies are prepared for delivery to loading sites.
- e. Assembly areas and loading sites within loading areas are prepared for use.
- f. All personnel are briefed.
- g. Transportation is obtained for moving equipment, supplies, and personnel to the assembly areas and loading sites.
- h. Plans for the execution of all phases of the operation are completed, coordinated, and approved.
- i. The movement to loading areas (when required) or loading sites is completed.
- j. A loading schedule and instructions are issued to units in the assembly area, prescribing the times and routes aircraft loads will follow to loading sites and the time they will arrive at their designated control points.
- k. Personnel, clothing, and equipment are given a final inspection and shortages are filled. Diaries, letters, and other unauthorized documents are left behind.
- l. Individual rations and ammunition are issued.
- m. Required reports are submitted.

## **90. Movement To Loading Sites**

- a. The transport aviation units arrive at the loading sites at the latest time practicable before the scheduled takeoff. The aircraft land at the sites according to the air movement plan.
- b. Selected personnel control the movement of the transported element of the force into loading sites by—
  - (1) Setting up loading control points to make a final check of aircraft loads and to direct or guide them to their assigned aircraft.
  - (2) Maintaining communication between loading control points and assembly areas. This permits adjustment of the loading schedule as necessary to complete the loading by the time prescribed.

## **91. Final Preparations At Loading Sites**

- a. Aircraft are prepared and positioned for loading in time to complete loading by station time.

b. The troops of the air-transported force load and lash their assault supplies and equipment with personnel of the transport aviation unit furnishing technical advice, supervision, and assistance, as necessary.

c. Bulky equipment that cannot be loaded in cargo compartments is prepared so that it can be carried externally. Personnel other than passengers are usually needed to attach the load.

## **92. Loading**

The assault echelon is loaded according to these basic considerations:

a. Enough troops must ride in each aircraft to unlash and unload equipment and supplies upon arrival in the objective area.

b. Unit commanders strive for tactical loading. All men carry their complete combat equipment, and ammunition must accompany each weapon.

c. Key personnel and equipment are distributed throughout each of the aircraft formations.

d. Prime movers accompany their weapons when possible.

## **93. Communication in Loading Area**

See paragraph 51.

# **Section III. AIR MOVEMENT**

## **94. General**

a. The commander of an air-landed force is responsible for the conduct of its movement. As required, he uses personnel to control movement from loading area(s), pathfinders when available, and the personnel and facilities of the supporting transport aviation unit to the extent required. The commander of the supporting transport aviation unit advises and assists him by maintaining communication with the aircraft and by transmitting movement instructions as required.

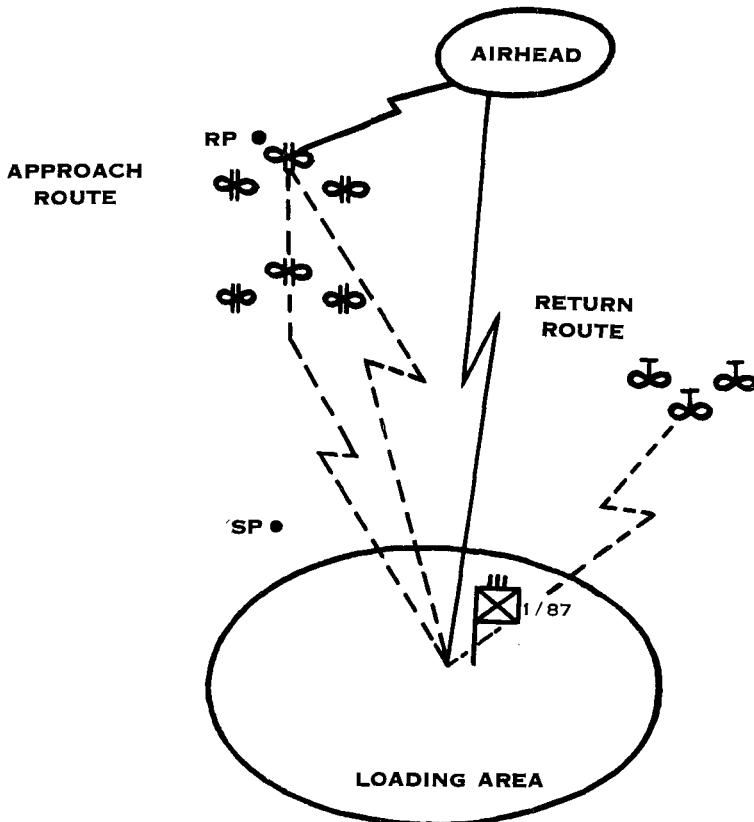
b. Communication facilities as shown in figure 10 should be provided to insure adequate control of the air movement.

## **95. Approach Flight**

a. Serials take off from the loading area, by flight unit, at the time prescribed in the air movement table unless otherwise directed by the force commander. The takeoff and movement to the IP are executed so the flight units arrive at the IP at the prescribed time and in the proper formation.

b. Personnel controlling movement are kept informed on the progress of the loading and of any changes in serial composition,

COMMUNICATION IN AIRHEAD MAY  
BE BY PATHFINDERS INITIALLY.



LEGEND:

RADIO COMM BY SUPPORTED INF UNIT.

TRANSPORT AIRPLANE

RADIO COMM BY SUPPORTING ARMY AVIATION UNIT.

TRANSPORT HELICOPTER

Figure 10. Air movement control communication.

delays, etc., due to aircraft aborting prior to or on takeoff. This is particularly important during shuttle movements.

c. The supporting transport aviation unit provides the necessary men and equipment at loading sites to physically control aircraft takeoff. They may be augmented in the loading area by pathfinder personnel and equipment.

d. Flight routes are defined by air control points (checkpoints). Normally, the IP and RP are easily recognizable land marks. They may be indicated by visual or electronic devices, especially at night and during periods of low visibility. Pathfinders may provide the

necessary personnel and equipment to mark such points. Additional air control points required for navigation may be designated and marked in a like manner.

e. The transport aviation unit commander is responsible for executing the flight as prescribed in the flight plan. He keeps the force commander informed of progress during the flight and makes any recommendations he considers appropriate.

f. Personnel controlling movement maintain contact with the column during flight, with pathfinders (if used) in the objective area, and transmit movement instructions as required (change in routes, altitude, formation, speed, etc.) in coordination with the flight operations center (FOC) in control of that corps area (par. 58h(1)).

g. Upon reaching the RP, flight serials within the air column leave the column and proceed to the assigned landing zones. Necessary instructions on the final approach to the landing zone and on landing may be transmitted by control personnel (pathfinders) at the landing zone(s). Contact between flight serial commanders and control personnel in the objective area is established at a predesignated point or time.

## **96. Unloading and Return Flight**

a. To reduce congestion in the landing zones and minimize the time aircraft are exposed to enemy fire while on the ground, they are unloaded rapidly and take off for return movement by flight units without organizing into flight serials. Control personnel within the airhead may assist in the takeoff and initial movement to avoid traffic congestion over the airhead.

b. Flight units return to loading areas over designated return routes. If an alternate route is to be used, necessary instructions are issued and coordinated with the FSC and other affected headquarters.

c. Control personnel in the airhead inform control personnel in the loading area of the progress of the landing and make appropriate recommendations.

d. When returning flight unit leaders reach a predesignated point, they contact the loading area for instructions.

## **Section IV. THE ASSAULT**

### **97. General**

a. The assault phase of an air-landed operation begins with the landing of the lead elements and continues through the seizure of the airhead and the reconnaissance and security line.

*b.* Ground combat in air-landed operations is conducted along conventional lines but under unusual conditions. Once these conditions are appreciated, the tactics and technique of normal ground combat can be applied.

*c.* In the early linkup type operation, the battle group usually seizes and defends the minimum terrain necessary to accomplish its mission. Adequate maneuver room and protected landing zones for resupply are included, as required.

*d.* The fact that an air-transported force usually lands where there are few fixed defenses and few well-organized combat troops facilitates rapid seizure of initial objectives. The enemy may be expected to react rapidly. Initial counterattacks are likely to be hasty, uncoordinated thrusts along main avenues of approach with any units available. These attacks progressively increase in strength, mass, and coordinated effort, and may possibly include counterattacks by air-transported forces. The enemy will usually employ armored units in these attacks, if available. The early preparation of a defense against armor is therefore a major consideration.

*e.* There are two general types of air-landed assault. They differ primarily in the proximity of the landing zones to the initial objectives assigned to a unit.

- (1) The first type involves the simultaneous landing of assault units directly upon or immediately adjacent to initial objectives and is the type used whenever feasible. Landing zones and landing sites (strips) are selected to capitalize on surprise and the capability of small units to land on almost any type of terrain. This type of assault has the following advantages:
  - (a) Surprise is exploited by seizing initial objectives and vital installations before defending forces can react.
  - (b) Assault units avoid the exhaustion resulting from forced marches, carrying heavy combat loads, and man-handling equipment over long distances.
  - (c) Greater initial dispersion makes the force less vulnerable to nuclear weapons.
- (2) The second type involves the landing, assembly, and reorganization, and then an attack to seize initial objectives. Landing zones and landing sites are selected with more emphasis on their suitability for landing, assembling, and reorganizing larger units without enemy interference. This type of assault is used if the terrain and enemy situation do not permit landing on or immediately adjacent to initial objectives. It has these advantages—

- (a) Loading, movement, and landing are simplified by the movement of major units to landing zones intact.
  - (b) Landing in an undefended zone reduces losses of aircraft and personnel in the landing phase.
  - (c) Coordinated action is facilitated by establishing control of small units before engaging the enemy in ground combat.
  - (d) Less time is required to train and rehearse troops for this type of assault since it most nearly resembles conventional ground combat.
  - (e) More protection is provided supporting weapons, command posts, and logistical installations in the vicinity of the landing zones.
  - (f) Fire support from outside the airhead is more easily coordinated with ground maneuver.
- (3) A variety of factors influences the selection of the type of assault: the mission, the state of training of participating units, the terrain, the strength and disposition of enemy forces, the capability of either side for employing mass destruction weapons, and other factors. Frequently, it will be advantageous to use both types of assault in one operation.

f. The mission and the requirement for depth of defense may dictate the assignment of wide frontages to combat elements of the force. However, air-transported units lack ground mobility because of the restricted quantities and types of equipment accompanying them in an assault. The lack of tanks and other motor vehicles increases the difficulty of conducting offensive or defensive operations requiring shock action or good ground mobility. This deficiency in ground mobility is partially balanced by shorter lines of communication within the airhead and by the possible use of Army transport aircraft within the airhead to move reserves, supplies, and equipment.

g. The reduced artillery support is partially overcome by greater reliance on the use of long-range artillery fires from friendly ground forces within range and by increased close air support. Further compensation is gained from the difficulty the enemy has in concentrating effective fires on hostile formations suddenly placed deep within his rear areas.

## **98. Landing and Reorganization**

a. *General.* The period between the start of the landing and the end of the reorganization of the assault elements is the most critical one as far as vulnerability to enemy attack is concerned. Progres-

sively larger units reorganize at the earliest practicable moment. When assault units land on or immediately adjacent to their initial objectives, they may have to delay reorganization until the objectives are seized.

*b. Landing.*

- (1) Troops land on assigned landing zones with subordinate units disposed on landing sites according to the planned tactical employment. Battle group separate units and the reserve land on the company landing zones or a separate landing zone centrally located within the airhead.
- (2) The rapidity with which units land varies greatly with the type and quantity of aircraft and the capacity of the landing zones. When the assault echelon can be transported in one lift, a unit may land in a few minutes. If the assault echelon has to be shuttled, a longer time is required.
- (3) When necessary, the initial flight units bring in the assault elements necessary to seize and secure the landing zone. Reconnaissance units land early and proceed immediately on their ground reconnaissance missions. Command groups land early so that they can establish control promptly, permitting commanders to gain timely information of the progress of the ground action. Forward observers and air control teams land early so that they can quickly employ all supporting fires both from within and from without the airhead. Supporting weapons land as close as possible to their planned initial firing positions.
- (4) All individuals and units land with essential weapons, equipment, and ammunition to insure their combat readiness and to reduce the time required for assembly. Additional equipment and supplies are delivered in later serials. If the aircraft can lift light command and reconnaissance vehicles and weapons, they are landed with the units.
- (5) Troops and equipment are unloaded from aircraft quickly and cleared from the landing sites (strips). This facilitates control of incoming aircraft, reduces danger of accidents, and reduces casualties from enemy fire.
- (6) When enemy fire interferes with the landing, prompt countermeasures are taken by all available means. If there are excessive casualties among troops or aircraft, the transported force commander reports the situation and determines whether or not the landing zone(s) or

site(s) (strips) will continue to be used, or whether alternate plans will be carried out. If countermeasures against enemy fire are ineffective, alternate landing zones or sites are used.

c. *Reorganization.*

- (1) When units land directly on or immediately adjacent to their initial objectives, squads, platoons, and special teams proceed to their objectives immediately, with little or no reorganization. In this type of assault, they reorganize concurrently with or soon after the seizure of the initial objectives.
- (2) When assembly areas are required, they are located within or adjacent to landing zones but clear of landing sites (strips). The elements that land first may be charged with gaining and maintaining security of the landing zones. Succeeding elements move intact directly from the landing sites to the predesignated assembly areas, assisted by guides and other appropriate assembly aids. All elements carry with them the equipment they immediately require for their missions. Upon arrival in assembly areas, unit commanders report the status of their units, receive any new instructions, and continue on their missions. These reports of readiness for action permit the battle group and company commanders to make any changes in missions that are warranted by changed circumstances.
- (3) Troops may be designated to remain on landing zones to protect the area, assemble stragglers, establish prisoner of war collecting points, care for casualties, or handle incoming supplies.
- (4) Reorganization is complete when assault elements of all units are assembled and communication is established.

**99. Seizure of Initial Objectives**

- a. The initial ground combat stresses the coordinated action of small units to seize initial objectives rapidly before the advantage of surprise is lost. All units attack as rapidly as the situation permits using all available fire support. Units assigned to perform reconnaissance and security missions land early and move out rapidly, or land on the RSL to establish roadblocks; to locate enemy forces; to disrupt enemy communication facilities; and to provide the commander with early warning, security, and information. When these units land directly on the RSL, consideration must be given to screening the area between it and the airhead line for

enemy. When initial objectives are heavily defended, the bulk of the force is employed to seize them; when they are lightly defended, the bulk of the force may be used to clear assigned sectors and prepare defensive positions in depth.

b. Units or personnel landed in areas other than those planned, direct their efforts to the general mission and establish contact with their respective headquarters as soon as practicable.

c. As soon as communications and the tactical situation permit, centralized control is established.

d. The commander places himself where he can exercise personal influence and he promotes successful action by shifting or allocating artillery, air, and other fire support; by redisposing forces, modifying missions, changing objectives and boundaries; and by employing reserves.

e. After initial objectives have been captured, subordinate units may seize additional objectives that make a coordinated defense easier to establish. Defensive positions are organized, communication supplemented, reserves reconstituted, and other measures taken to prepare the force to repel enemy counterattacks, to minimize the effects of attack by mass destruction weapons, or to resume the offensive. Extensive patrolling is begun between adjacent defensive positions along the airhead line, between the airhead line and the RSL, and forward of the RSL.

## **100. Development of the Airhead**

a. After the initial ground missions have been accomplished, the major consideration is to organize the airhead line. The first step is to seize quickly, critical terrain features along the airhead line.

b. The extent to which the airhead is occupied and organized for defense is determined largely by the mission, enemy capabilities, and defensive characteristics of the terrain. Appropriate commanders adjust the preplanned disposition of troops and installations to fit the realities of the terrain and situation. If the mission calls for an early continuation of the ground offensive beyond the initial limits of the airhead and if the likelihood of enemy counterattack during the interim appears negligible, the airhead line is only lightly organized. On the other hand, if the mission calls for defense of the initial airhead for a considerable period of time, or if an early enemy counterattack appears likely, more effort is expended in organizing the airhead line and defense in depth. As additional units are landed in the airhead, positions are organized more strongly. The forces of the RSL are reinforced relatively early in the operation, making maximum use of aircraft. Reconnaissance forward of the RSL is intensified both by aircraft and

surface means. Artillery and mortars, properly protected, may be displaced to positions close behind or beyond the airhead line to provide fire support to R&S forces. Roadblocks, minefields, and similar artificial obstacles are continuously improved along all likely avenues of approach, particularly those suitable for enemy armor.

## **Section V. DEFENSE OF THE AIRHEAD**

### **101. General**

a. Air-landed operations involving the establishment of an airhead normally have a defensive phase. The period of time involved may vary from a few hours to a few days depending on the mission assigned, the size and composition of the force, enemy reaction, and the type operation contemplated.

b. Defense measures against mass destruction weapons and enemy armored attack are of particular importance in this type of operation.

### **102. Conduct of Defense**

a. Defense of the airhead perimeter employing the position defense is accomplished by organizing and occupying the dominant terrain along the airhead line to cover main routes of approach into the airhead ; covering unoccupied terrain between defended localities by fire, mines, and other artificial and natural obstacles ; patrolling continuously ; and withholding a reserve with as much mobility as is practicable. Enemy attacks are countered by shifting units, reinforcing threatened areas, employing massed fire support, and counterattacking with reserves. The interior lines of communication in the circular shaped airhead facilitate shifting troops, massing supporting fires, and committing reserves, including units from portions of the airhead perimeter not under attack. Reserves are held in positions of readiness prepared to counterattack, to occupy defense positions, or to execute blocking missions.

b. The position defense of the airhead involves the organization of a series of mutually supporting defensive areas along the airhead line in generally the same manner as the battle area is organized in other ground defensive operations. In average terrain, an airhead so organized for defense throughout the perimeter would necessarily be quite small and thus lack the required defense in depth. It also would be congested and increase the vulnerability of the force to nuclear weapons, as well as others, in support of enemy attacks. In close terrain, battle groups and companies operating independently may find it advantageous to adopt a more compact position defense in order to prevent the penetration of the perimeter.

c. Positions are prepared in depth within the capabilities of the force. Engineer support is used for whatever construction, demolition, or special skill may be required during the conduct of the defense.

### **103. Defense Against Armor**

a. Continuing emphasis must be placed on improving and extending antitank defense in the airhead because of its vulnerability to enemy armor. Organic antitank weapons, artificial obstacles, natural obstacles, and tactical air and other available support must be used to maximum advantage.

b. During the initial phase of the assault, the primary defense against enemy armor is air support. Aircraft attack enemy targets which appear, dispersing them and delaying enemy buildup. In this manner, well-coordinated enemy attacks are delayed until the force can assemble, reorganize, seize initial objectives, and organize initial defenses. Throughout the operation, enemy armor is attacked at long distances from the airhead and maintained under observation and attack as long as it poses a threat.

c. Strong points along the airhead line use natural obstacles such as rivers, swamps, woods, built-up areas, and gullies or ditches, augmented by minefields, wire entanglements, tank traps, demolitions, and similar artificial obstacles to strengthen their defenses. Antitank weapons are located in depth along favorable avenues for armor.

### **104. Defense Against Atomic Attack**

a. The air-transported force normally seizes objectives of significant tactical importance. Therefore, early attack by enemy mobile forces, supported by atomic as well as conventional weapons, is to be expected. The force must have reserves with enough mobility to counter enemy efforts.

b. The requirement for dispersion to protect the air-transported force from destruction by atomic weapons is in direct conflict with the requirement for an airhead small enough to be defended. Usually, the size of the airhead organized by a battle group will be such that major elements of the force may be lost to one or more atomic weapons. Consequently, reserves of appropriate size may be provided within friendly lines ready for emergency movement into the airhead.

c. The practicability of a successful defense in a dispersed formation can be increased by using atomic weapons to attack enemy concentrations.

d. In most air-landed operations, some elements of the air-transported force are close enough to enemy units and vital installa-

tions to obtain a measure of protection from their atomic weapons. In addition, normal active and passive defensive measures are used, with emphasis on the importance of camouflage, deep foxholes, and overhead cover for individual protection.

e. Defensive positions, in addition to meeting conventional requirements for defense, must be selected with a view to the influence of the terrain on atomic bursts. Wooded or built-up areas may become impassable because of secondary fires and debris. Ground forms provide shields under certain conditions while under others they tend to canalize the effects of an atomic burst.

f. Key command, control, and logistical installations are duplicated when possible and are provided as much protection as is practicable.

g. To achieve further dispersion, the airhead may be expanded by moving a majority of the force out to occupy the RSL. In so doing, the R&S forces may then be used to reconnoiter in the direction of most likely enemy threats or approaching friendly linkup forces. The conduct of the defense of the expanded airhead is similar to the conduct of a delaying action.

## **Section VI. SUBSEQUENT OPERATIONS**

### **105. General**

a. After the airhead is established, the air-transported force may engage in a variety of operations. These include defense of the airhead, linkup with surface forces, operations to exploit initial successes, withdrawal from the airhead, and others.

b. In early linkup operations, the buildup of troops is limited. The buildup of supplies and equipment is limited to that necessary to support operations until ground linkup and to provide for periods during which adverse weather or enemy air action may hinder resupply. If necessary for the continued operation of aircraft or increase in the use of aircraft, engineer support may be used for maintenance or improvement of landing facilities.

### **106. Ground Linkup**

a. The execution of the ground linkup plan described in chapter 3 is an important phase of air-landed operations. Close coordination of the force within the airhead with the ground linkup force depends on prior planning, close liaison between the forces concerned, and effective communications. Each force promptly exploits the success of the other.

b. In the initial stages of the operation, coordination may be limited to an exchange of information. As the linkup force nears

the airhead, fires are coordinated by a system of recognition signals for direct fire weapons, or the exchange of location of no fire lines for indirect fire weapons. As the situation develops, objectives and axes or boundaries for the advancing friendly force are changed to facilitate the linkup. Avenues of approach close to and through the airhead are held open by forces from the airhead. When necessary, offensive action is conducted from the airhead to break roadblocks and to otherwise disrupt enemy forces delaying the linkup force.

c. During the approach of the advancing friendly force, the airhead forces may be subjected to the most violent attacks of the operation. Enemy forces withdrawing before the ground attacks may find key road junctions, defiles, and other critical areas along their withdrawal routes blocked by the force in the airhead. Enemy attempts to penetrate the airhead line and escape are resisted to the utmost by committing all available reserves, as well as units from portions of the airhead perimeter not under attack.

## **107. Nature of Subsequent Operations**

a. After linkup, the air transported force may be directed to continue ground operations or it may be relieved to prepare for subsequent air-landed assaults.

- (1) The air-transported force, with other forces, may conduct an exploitation from the airhead area to capitalize on surprise and obtain a decisive tactical success. The combat forces and logistical support needed for exploitation are air-landed or brought in by surface means. The exploiting forces require mobility and firepower. Exploitation operations are conducted according to the same principles and techniques as other ground operations, with emphasis on rapidity of action.
- (2) The air-transported force may be employed in the exploitation to execute additional air-landed assaults to seize and secure critical objectives in order to facilitate friendly maneuver and delay enemy withdrawal.

b. Withdrawal from an airhead may be forced by the enemy or may be made voluntarily. Advance planning is imperative, as the limitations of transport aircraft and the circular shape of the airhead introduce complicating factors that do not exist in other surface withdrawals. When the situation permits, the withdrawal plan usually provides for evacuation in this sequence: supplies, materiel, and troops. When enemy action forces withdrawal, supplies and materiel which cannot be evacuated are destroyed. Extensive fire support is necessary for a successful withdrawal from an airhead.

## **CHAPTER 6**

### **TYPES OF OPERATIONS**

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#### **Section I. GENERAL**

##### **108. Introduction**

This chapter describes the tactical use of Army transport aircraft in movements to contact and offensive, defensive, retrograde, airborne, amphibious, and special operations, emphasizing the differences in planning for each. Regardless of the tactical employment of transport aircraft, the sequence of tactical planning is the same as that outlined in chapter 3, but certain planning phases may be omitted or deemphasized to conform with the tactical and logistical aspects of a particular type of operation.

##### **109. Considerations**

a. The great variety of uses to which transport aircraft can be put in most operations will result in a demand for more of them than a force can reasonably be expected to have. To determine how those that are available can best be used, the following factors must be considered:

- (1) The characteristics of the terrain in different parts of the area of operation.
- (2) The experience of both the transport aviation and ground units in conducting air-landed operations.
- (3) The size and type of mobile ground forces available for reconnaissance and security missions.
- (4) The capability of enemy air and ground fire units to interfere with the aircraft.
- (5) The capability of ground transport to meet requirements for the movement of units and for logistical support.
- (6) Enemy capabilities for conducting all types of airborne operations.
- (7) The number of aircraft available, their cargo capacities, range, and state of maintenance.
- (8) The weather's effects on transport aircraft operations and ground transport.

- (9) The effect of the employment of transport aircraft on the secrecy of operations.
  - (10) The effect of the employment of transport aircraft on fire support plans.
  - (11) The adequacy of communication systems for controlling air-landed operations over extended distances.
- b. The following precepts apply to the planning and conduct of all operations involving the employment of Army transport aircraft:
- (1) Transport aircraft are not employed on missions that can be accomplished efficiently by other means of transport. Their use is reserved for missions which other means of transport cannot accomplish in the time available.
  - (2) Since any unit may be moved or reinforced and supplied by transport aircraft, all units must be trained in procedures for loading, unloading, and landing.
  - (3) Centralized control of transport aviation units should be retained as long as possible to simplify refueling and maintenance and to facilitate the concentration of transport aviation units in support of critical operations.
  - (4) Tactical loading is employed whenever contact may be imminent as the force lands.
  - (5) Close coordination with all fire support agencies is necessary if air-landed operations are to be successful. Unnecessary interference with friendly fires is avoided. Extensive artillery support, including smoke, and close air support are employed.
  - (6) Friendly units are kept informed of all air movements so they will not be mistakenly identified as enemy. Likewise, enemy air movements must be promptly identified and reported.

## **Section II. TRANSPORT AIRCRAFT EMPLOYMENT COMMON TO ALL TYPES OF OPERATIONS**

### **110. General**

Certain uses of transport aircraft are common to all types of ground operations and require the same planning considerations. This section discusses these common uses and the plans for them.

### **111. Reconnaissance and Security**

a. When security forces are equipped with transport aircraft they can operate over larger areas with fewer men. They can reconnoiter from the air, and their ground reconnaissance elements

can be moved and landed as desired to reconnoiter specific areas as well as the intervals between positions.

b. Air-transported security elements may be required to make frequent landings in areas with little or no prior reconnaissance and without landing assistance. Reconnaissance aircraft may at times be used to precede the transport aircraft to locate areas most appropriate for ground reconnaissance and assist in the selection of and guidance to suitable landing zones and sites.

c. For the most effective use, it may be necessary to decentralize control of the transport aircraft down to small security units. However, decentralizing control and employing aircraft over great areas will complicate plans for fueling and maintenance. It is so important to have close teamwork between the small security units and the supporting transport aviation units that it may be advisable to specially train aviation units for such missions or to equip reconnaissance units with organic aircraft, thus forming a composite team.

## **112. Concentration of Forces for Offensive Action**

Transport aircraft may be used to help concentrate forces for offensive action. This may occur in the buildup to gain a preponderance of force in a meeting engagement, in the preparation for attacking organized positions, in preparation for a counter-attack, and in other offensive actions. The concentration is covered by security elements which may be ground units already in contact with the enemy or air-transported units landed to provide security for large forces following. The force being concentrated for offensive action lands as close to the line of departure as the enemy situation, terrain, visibility, and fire support permit. The fire support should be extensive and should include smoke concentrations. The action by security forces should be aggressive. Plans for concentrating a force by aircraft are coordinated closely with the maneuver of other friendly forces arriving in the concentration area by surface means. The landing is timed to permit prompt employment of the air-transported force before tactical surprise is lost.

## **113. Vertical Envelopment**

In many types of operations, a vertical envelopment (fig. 11) may be on a small scale. The planning for seizing an objective by vertical envelopment in a small-scale operation is similar to that for a large-scale vertical envelopment as discussed in chapter 3. There may be less time for planning and reconnaissance. It may not be advisable in daylight operations to have pathfinders precede the assault if a surprise landing is necessary. There may not be

enough pathfinders to go round when many small-scale vertical envelopments are executed simultaneously; however, if pathfinders are available and are not used to precede the assault elements, they should accompany the assault elements to control air traffic in the objective area. When the fire support available to an air-landed force is limited, consideration should be given to conducting the operation within range of close support artillery located behind the line of contact. The commander carefully weighs the fire support available against that which he considers necessary to accomplish his mission.

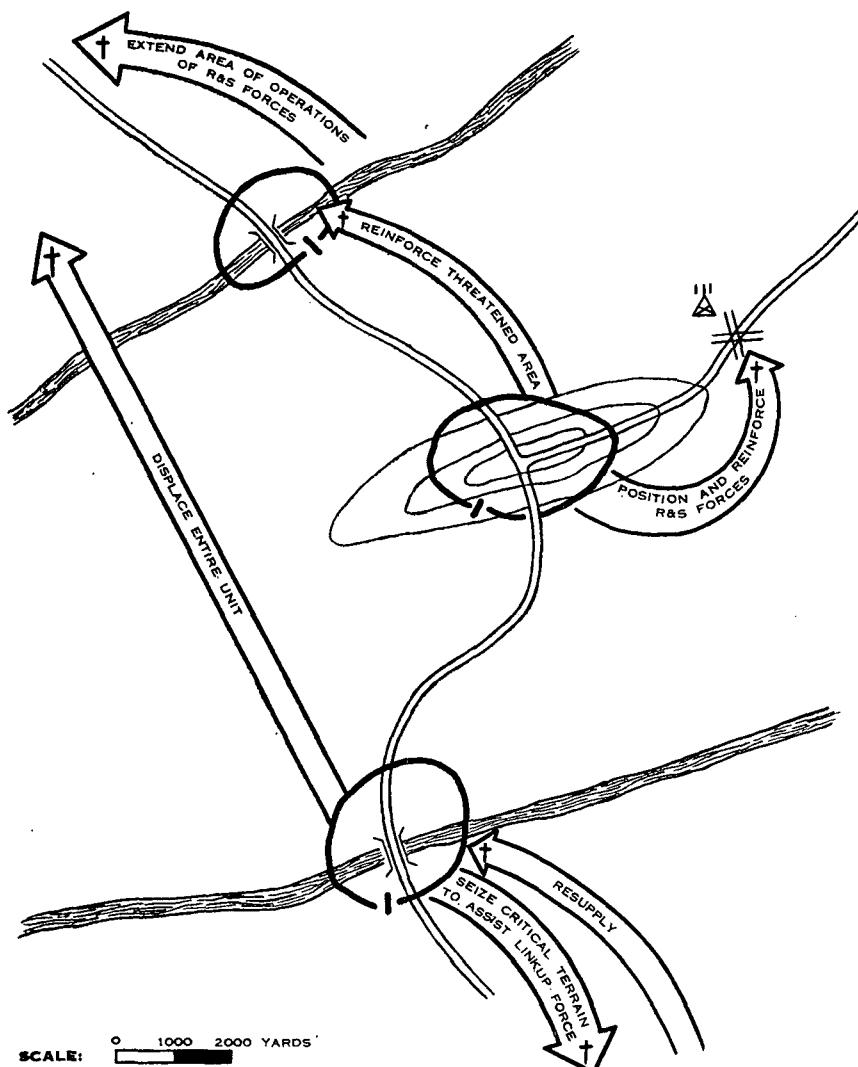


Figure 11. Vertical envelopment (employment in objective area).

## **114. Redisposition of Units Behind Friendly Lines**

Transport aircraft may be used to move reserves to blocking positions in the defense, to move them forward behind attacking units, to shift frontline units, and to displace units in retrograde movements. The ability to lift troops over friendly minefields and other barriers is of particular importance in retrograde operations. These air movements also nullify enemy interdiction of ground routes of communication. Air movements and landings are simplified because there is no contact with the enemy and because landing zones and routes can be reconnoitered without danger. Lateral movement across the area of operations may complicate coordination with fire support agencies and ground units.

## **115. Displacement of Fire Support Units**

Transport helicopters can shift supporting weapons and their forward observers rapidly, without regard to terrain obstacles, and place them on terrain otherwise inaccessible. (Weapons on inaccessible terrain must depend on helicopters for their ammunition supply.) Helicopters can displace weapons forward by echelon rapidly in the attack, and from one firing position to another to avoid enemy counterfire or to mass friendly fires.

## **116. Air Supply and Evacuation**

*a.* The requirement for aerial or air-landed delivery of supplies and air evacuation may result from—

- (1) Inadequate surface routes of communication between supply installations and supported units.
- (2) Enemy interdiction or severance of surface routes of communication.
- (3) Terrain obstacles or restrictions which prohibit or seriously limit the use of surface transportation.
- (4) An advance that outstrips the supply capability of surface transportation.
- (5) The isolation of friendly units.
- (6) An overriding requirement for speed and flexibility in the movement of supplies and the evacuation of personnel.

*b.* When transport aircraft are used for supply and evacuation (fig. 12), the ground installations may be dispersed laterally and in depth with less regard for intervening terrain obstacles. These installations prepare landing sites and establish handling crews to receive and distribute supplies. Standing operating procedures

prescribe type loads to assure efficient loading. Large-scale supply and evacuation by aircraft may complicate fire support coordination. To alleviate this problem, flights can be scheduled to fly along specified routes. Coordinating the supply routes and schedules with the FSC will resolve any conflict of mission between aerial supply and supporting fire missions.

c. The ground commander can save much time and labor because of the ability of tactical transport aircraft to bypass intermediate supply installations. In planning for aerial supply missions, the following should be considered:

- (1) The selection, preparation, operation, and security of loading areas and sites.
- (2) The establishment of control measures in the loading area.

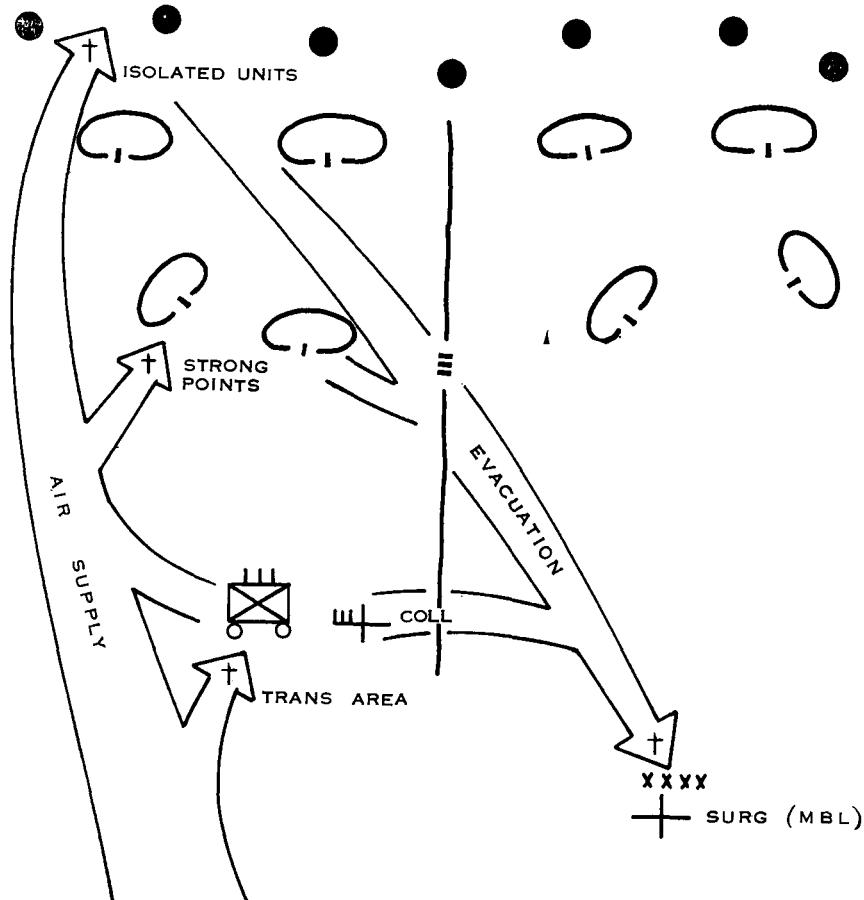


Figure 12. Air supply and evacuation.

- (3) The determination of prescribed loads to insure efficient loading.
- (4) The provision for palletizing certain items of supplies and equipment (type loads) to expedite loading and to prevent damage.
- (5) A preplanned method for the identification of landing and drop zones during both daylight and periods of poor visibility.
- (6) A means of communication between the supported unit and the Army transport aviation unit.
- (7) The designation, by the supported forces, of landing and drop zone control groups and crews to unload or recover supplies.
- (8) The maximum use of returning transport aircraft for evacuation.

## **117. Supply, Evacuation, Reinforcement, and Withdrawal of Isolated Units**

Transport aircraft, especially helicopters, are suited ideally for supporting units isolated by enemy action or terrain. They can transport supplies, evacuate casualties, land reinforcements, or withdraw the entire isolated force. Due to the proximity of enemy forces and the small size of the defended area, enemy fire may cause serious losses in landing zones and during air movement. Landing sites are selected carefully to reduce the effectiveness of enemy observation and fire, and troops and supplies are loaded and unloaded rapidly. Smoke and other fires of ground weapons and close air support are timed to cover friendly activities. The operation may have to be conducted at night or under cover of adverse weather because of enemy interference. In this event, the use of pathfinders may be desirable. The withdrawal of an isolated unit in contact with the enemy requires careful planning and rapid execution. Secrecy is unlikely once the movement begins. Ideally, all elements of the isolated force are withdrawn simultaneously. Other air-transported forces may be used to assist the withdrawal of an isolated unit by making a diversionary attack, such as seizing undefended or lightly defended terrain from which they can support the isolated unit by fire. When a covering force is required, it may be most difficult to extricate it. After all other elements have been withdrawn, the covering force breaks contact and moves rapidly, protected by fires on advancing enemy elements, to a loading site where transport aircraft are

waiting. The loading site may be boxed in by friendly fires until the aircraft are ready to take off.

## 118. Deception

The speed and flexibility inherent in air-landed operations enhance the possibilities of obtaining surprise as to the locality of the main effort. Deception is employed to minimize enemy interference with operations. Aircraft and air-landed forces may be employed in a variety of ways to deceive the enemy. Aircraft may be used to shift units and supporting weapons and to display activity in dummy positions, and air-landed forces may execute feints and demonstrations.

a. Feints are planned and executed like other offensive operations, but plans are flexible so that any unforeseen tactical opportunity that develops can be capitalized on. Several feints may be made simultaneously over a broad front.

b. Demonstrations involving movement beyond the line of contact require the same fire support along routes as other air movements over enemy lines. In any type of demonstration, the diversion of aircraft from the main effort and the possible loss of aircraft must be weighed against the tactical advantages gained. Demonstrations behind friendly lines require the same coordination as other transport aircraft movements behind friendly lines. Small units can create the impression of being much larger forces.

c. Various deception techniques can and should be employed to assist in maintaining security during air-landed operations. A few of these techniques follow:

- (1) Use fixed-wing and high performance jet aircraft to conceal motor and rotor noise.
- (2) Start tank and truck engines to conceal helicopter noise during warmup and movements close to the line of combat.
- (3) Fire artillery concentrations or make aerial strikes along the flight corridor and adjacent to the landing zones.
- (4) Have helicopters hover or land several times at various places or areas during the flight to conceal the location where troops and supplies are actually loaded or unloaded.
- (5) Use battle simulators (landed or dropped) to create diversions and confusion.
- (6) Bypass known enemy installations or approach an objective area on the downwind side so that flight noises will not give the enemy early warning.

### Section III. TRANSPORT AIRCRAFT EMPLOYMENT PECULIAR TO EACH TYPE OF OPERATION

#### 119. General

This section depicts the possible uses of transport aircraft in each type of operation (except special operations, which are described in pars. 126-130) by a series of figures. The employment and considerations peculiar to each type of operation are covered in the text.

#### 120. Movement to Contact

During movement to contact, air-landed forces may be employed with the covering force, between the covering force and advance guard, with the advance guard, and on the flanks of the main body (fig. 13). Reconnaissance for suitable landing zones is continuous throughout movement to contact. Air-landed security elements between the advance guard and covering force normally are under control of the column commander. He controls them by assigning phase lines, specific objectives, and zones, areas, or routes of reconnaissance.

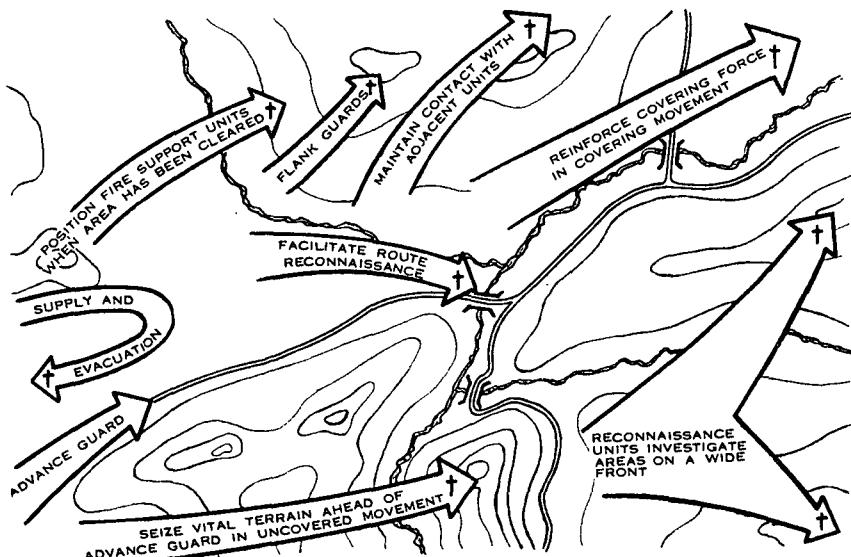


Figure 13. Movement to contact.

#### 121. Offense

Transport aircraft employed in offensive actions can transform limited success into sizable gains, or they can substantially shorten the time required to execute an operation.

*a. Meeting Engagements* (fig. 14). In a meeting engagement, the force that seizes the initiative has the advantage. Air-landed forces can act as soon as they acquire enough information about the enemy force and the terrain. The column commander must have control over air-transported forces or aviation units in reserve to be able to use them quickly and effectively in a meeting engagement. He can use air-landed security forces to seize quickly critical terrain on the enemy flanks or rear and to gain knowledge of enemy actions. The size of this force is based on aircraft availability and the fire support that can be provided. As soon as he obtains information on the enemy and suitable landing zones, he can launch an air-landed maneuvering force against the enemy. He can do this more promptly if his reserve consists of air-landed forces. It is important to launch the operation before the enemy can deploy for an attack.

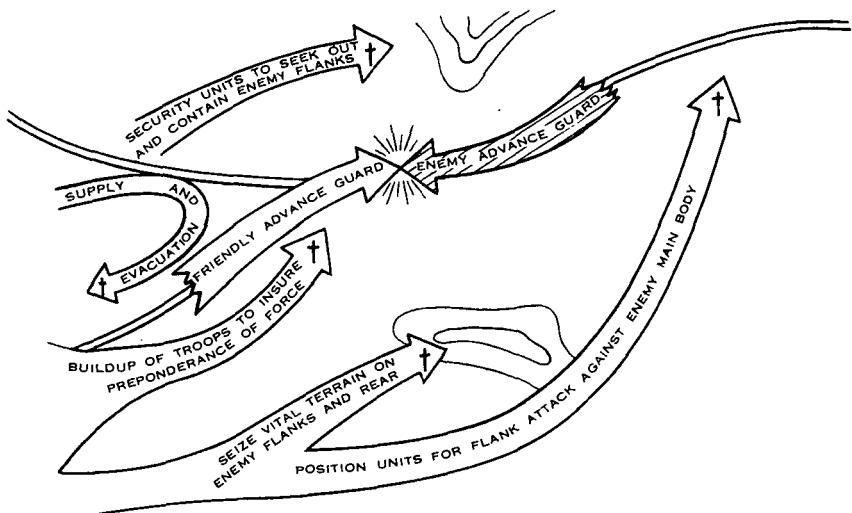
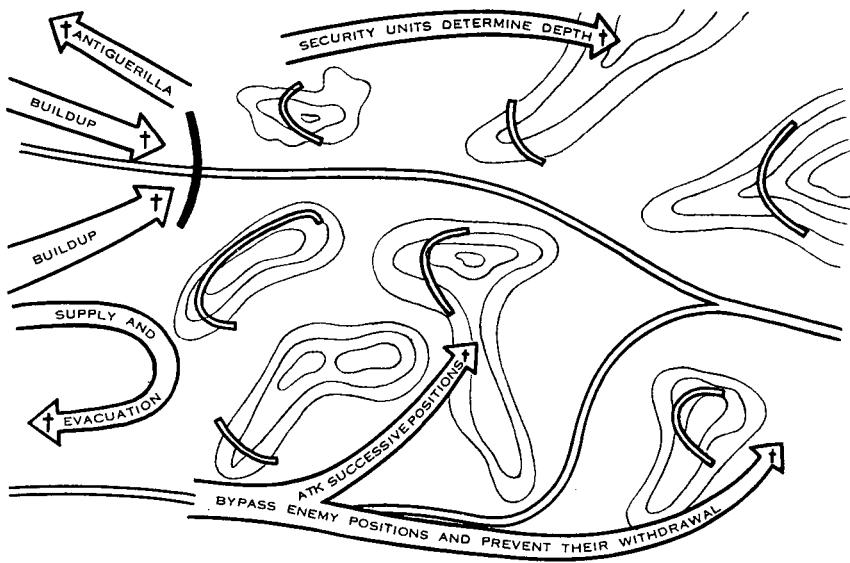


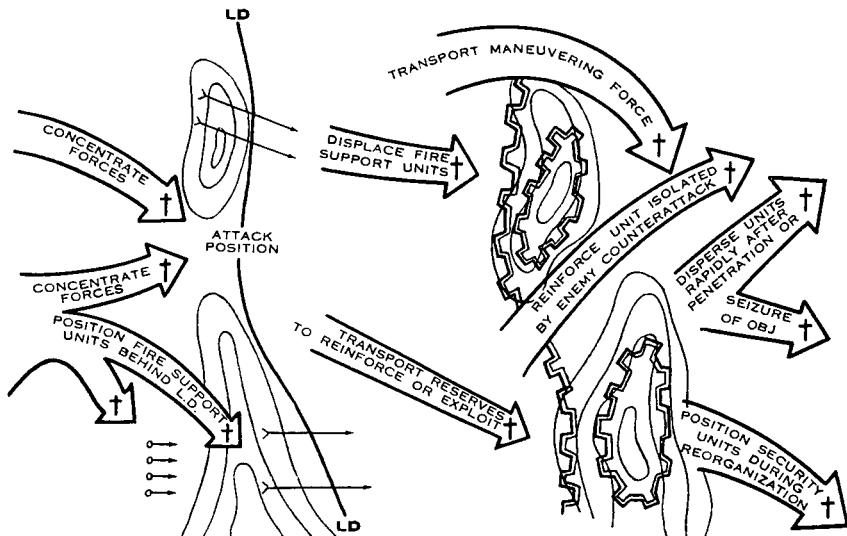
Figure 14. Meeting engagement.

*b. Attack Against Delaying Positions* (fig. 15). Air-landed reconnaissance and security forces can determine the depth of enemy delaying positions and note the obstacles prepared or improved by the enemy. With this information, air-landed forces can bypass initial delaying positions and obstacles and strike succeeding ones or seize and secure critical terrain in the enemy rear. This may impel the enemy to withdraw from his initial positions before the ground force has to deploy to attack them. When the ground forces must deploy to attack the initial positions, transport aircraft may be used to aid their buildup.



*Figure 15. Attack against delaying positions.*

c. *Attack Against Organized Positions* (fig. 16). An attack by vertical envelopment may overcome the defensive strength of an organized position that a ground force might find difficult to penetrate or outflank. In addition, air-landed forces can attack with greater speed than other ground forces. They should be large



*Figure 16. Attack against organized positions.*

enough to take advantage of the surprise gained. They can use multiple routes to reduce the time that they are exposed during the air movement if this does not restrict supporting fires too much. Every effort is made to neutralize enemy fires while air-landed forces are flying over an organized position. The transport aviation units must be under centralized control so they can be used efficiently to disperse units that have penetrated or seized an objective. If the air-transported force is not employed in a vertical envelopment during the initial phase of the attack, it may be held in reserve to reinforce or exploit a penetration.

*d. Attack of a River Line (fig. 17).*

- (1) Air-landed reconnaissance forces are used early in the approach to a river to determine enemy strength and dispositions and crossing sites. If possible, air-landed forces seize a bridgehead before the enemy can position his forces and prepare his defense. A river is not an obstacle to air-landed forces except for the equipment that is too bulky or heavy for the aircraft to transport. When faced with air-landed forces, the enemy may have to reduce the strength of his river line to protect his rear area.
- (2) Air-landed forces seize objectives that dominate the ground forces' crossing sites. They should be on their objectives early enough to warn of or prevent counter-attacking enemy forces from striking the ground forces while they are astride the river. The air-landed forces should also seal off surface routes of withdrawal and approach while the bridgehead is being developed. Transport aircraft can speed up the development of the bridgehead by shuttling troops and equipment. The time saved allows the attacker to begin subsequent operations before the enemy can react with strength.
- (3) Less engineer assistance is required when air-landed forces can be used in attacking a river line, and the problems of supply and evacuation are reduced by using aircraft for transport.

*e. Pursuit (fig. 18).* The commander of a pursuit force can maintain or rapidly regain contact with the enemy by using air-landed forces. He gives the encircling force the highest priority when assigning tactical transport aircraft. Because an encircling movement is quickly planned and executed, air-landed forces may have to rely on the intelligence already at hand. For this reason and because speed and accuracy of movement and landing are of

more importance than secrecy, pathfinders may be used. When operating over extended distances, communication and logistical support require special consideration.

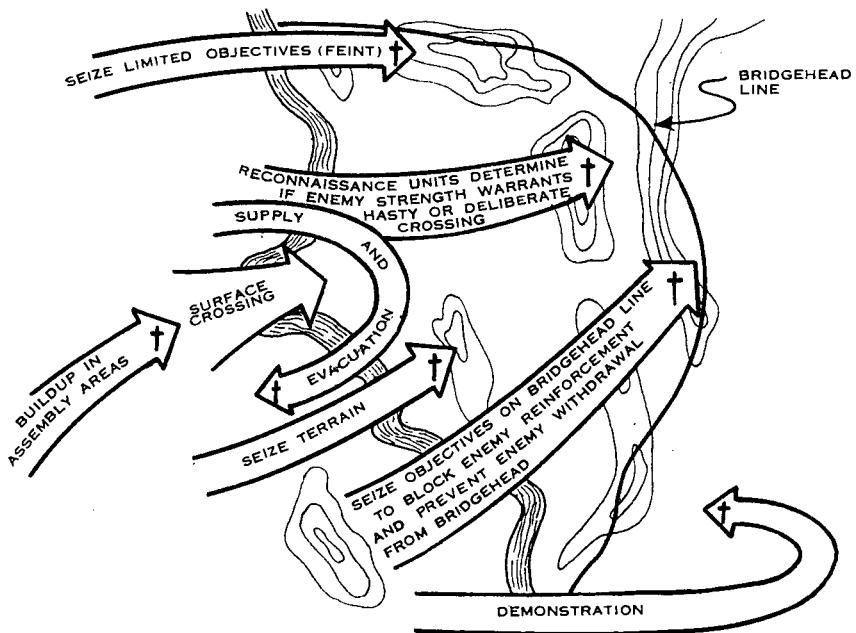


Figure 17. Attack of a river line.

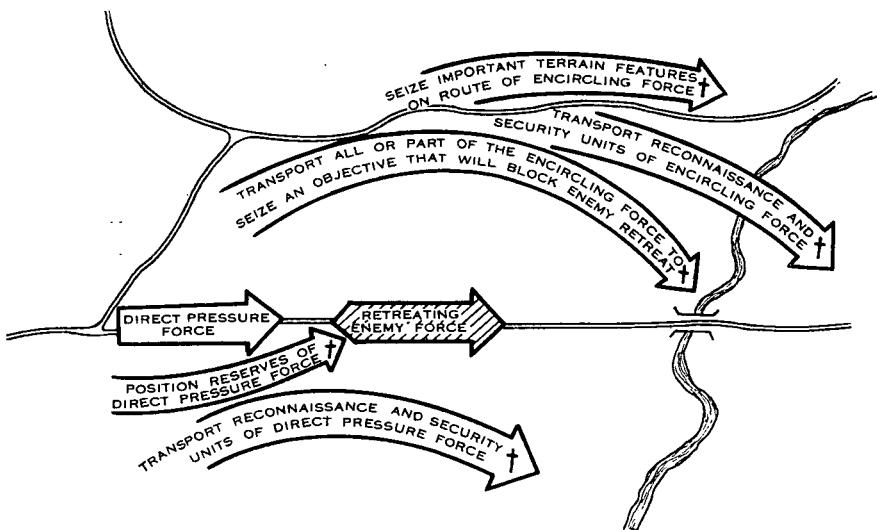


Figure 18. Pursuit.

## 122. Defense

a. *Position Defense* (fig. 19). The area of operations in position defense may be much smaller than in the mobile defense or in offensive operations, reducing the overall need for transport aircraft. The shorter distances facilitate centralized control and simplify the problems of maintenance, refueling, and communication. The stabilized situation in position defense allows more time to prepare landing sites and establish maintenance and refueling installations and, since there are fewer areas of possible employment, planning can be more detailed.

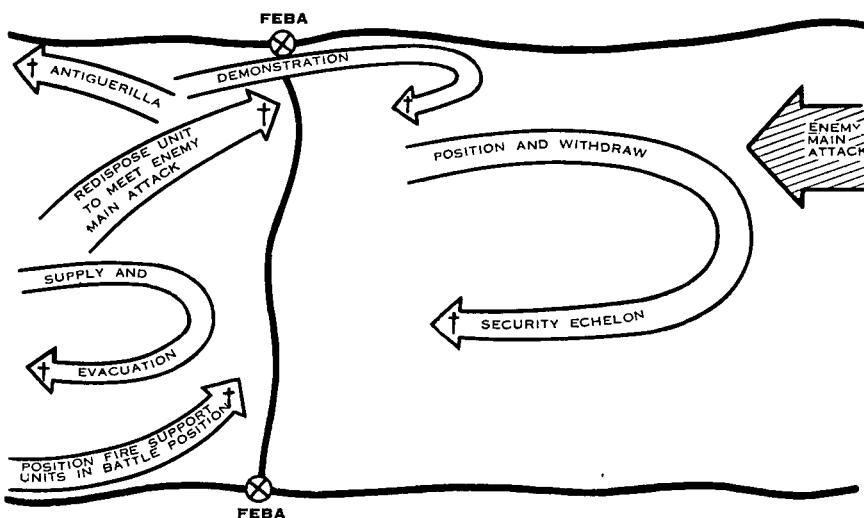


Figure 19. Position defense.

b. *Mobile Defense* (figs. 20 and 21). Because of the extended distances between units in mobile defense, transport aircraft can be used to greater advantage than in position defense. The mobility provided by transport aircraft may be the decisive factor which enables the defender to support his widely dispersed elements in defensive action and to concentrate superior forces for offensive action. The distances involved increase the difficulties of maintenance, refueling, and communication. Forward refueling installations may have to be established. Plans for employing air-landed forces in counterattacks must be flexible because of the broad area of operation. Units should make maximum use of reconnaissance, observation, and surveillance in their assigned areas to conserve transport aviation for support of the major force as a whole.

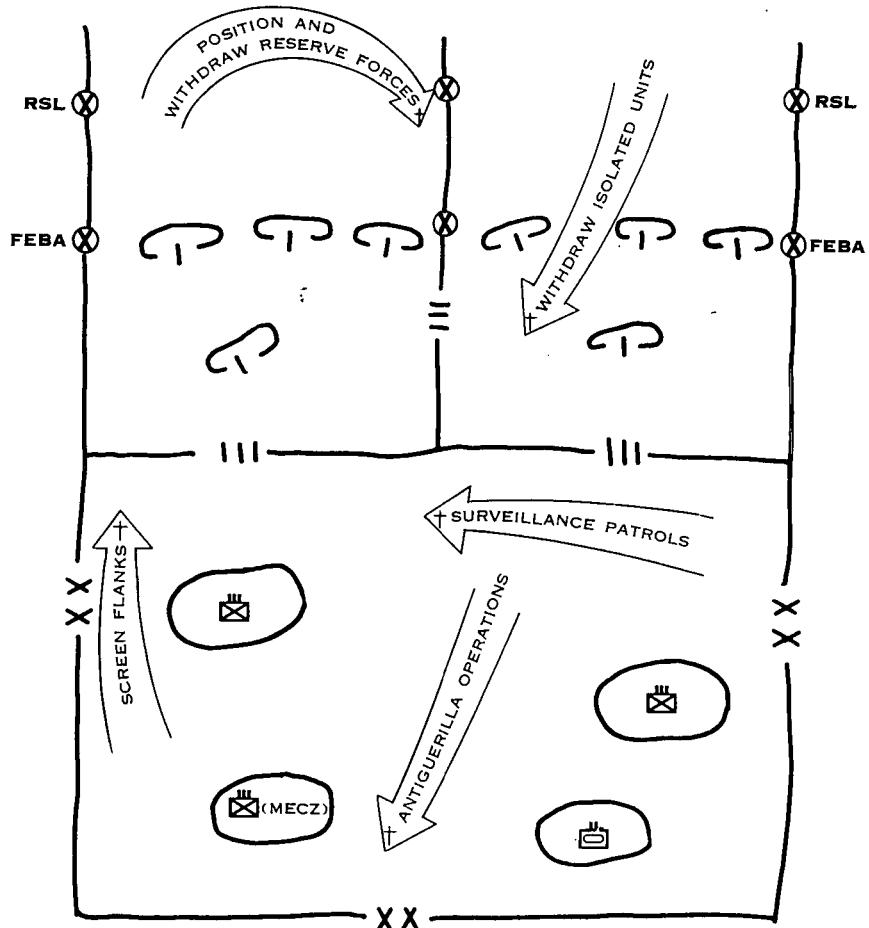


Figure 20. Mobile defense (security forces).

c. Counterattack (fig. 22). With transport aviation units available, the commander can cover many enemy avenues of approach by keeping an air-landed force in reserve to meet a penetration. This reserve force may be smaller than normal reserve strength because of its mobility. Air-landed reserves of higher units may be held in readiness for a counterattack in dispersed positions farther from the line of contact than reserves that depend on surface transport. Air-landed reserves of adjacent units may be massed to meet a penetration in a particular unit's area to create a shock effect on the enemy before he can exploit the penetration. Special consideration must be given to coordination with fire support units that are to lay down fires within the penetration area, and with other surface and air-landed forces participating in the counterattack. This coordination should be

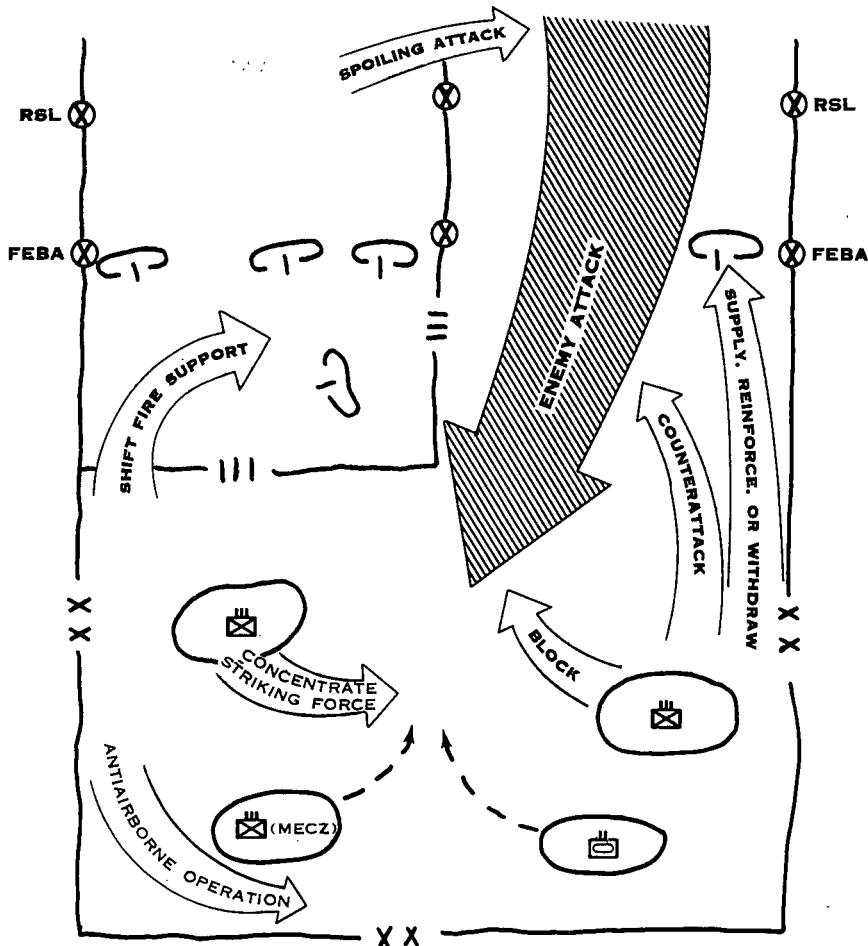


Figure 21. Conduct of mobile defense.

rehearsed in as many probable penetration areas as time permits. Counterattacking air-landed forces that make lateral movements should select routes that proceed behind the line of contact to avoid enemy detection and reduce the restriction on friendly fires. For additional considerations, see paragraph 112. Antiairborne counterattack is discussed in paragraph 123.

*d. Relief of Frontline Units (fig. 23).* Since secrecy is of primary importance in a night relief, the noise of transport aircraft may make it advisable not to use them farther forward than reserve positions. However, when speed is essential in day or night relief, aircraft can transport incoming units to reverse slope positions and withdraw outgoing units simultaneously. The outgoing units should mark landing sites. The fact that outgoing

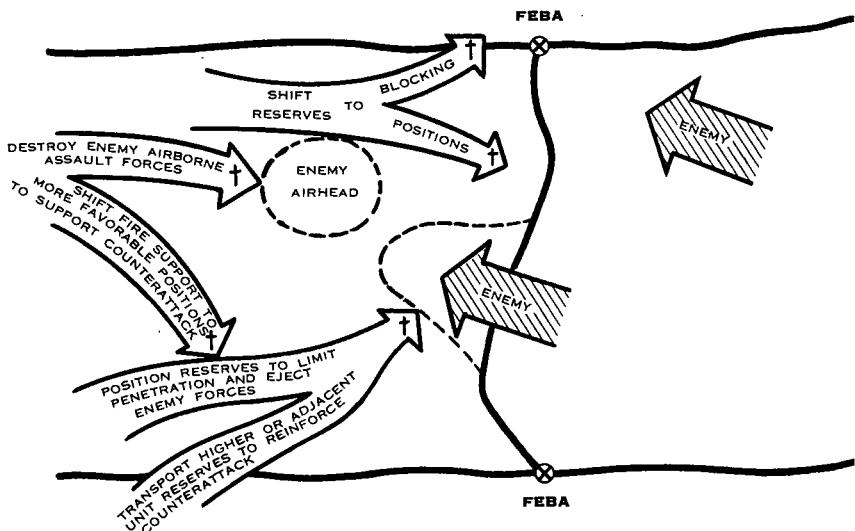


Figure 22. Counterattack.

units normally are relieved by similar type units facilitates rapid loading at the forward landing sites. When demonstrations and feints are incorporated with the relief, the incoming and outgoing units should have priority for transport aviation units. The overall ground force headquarters should maintain control of the aircraft to avoid a changeover of control between the incoming and outgoing units. See also paragraph 114.

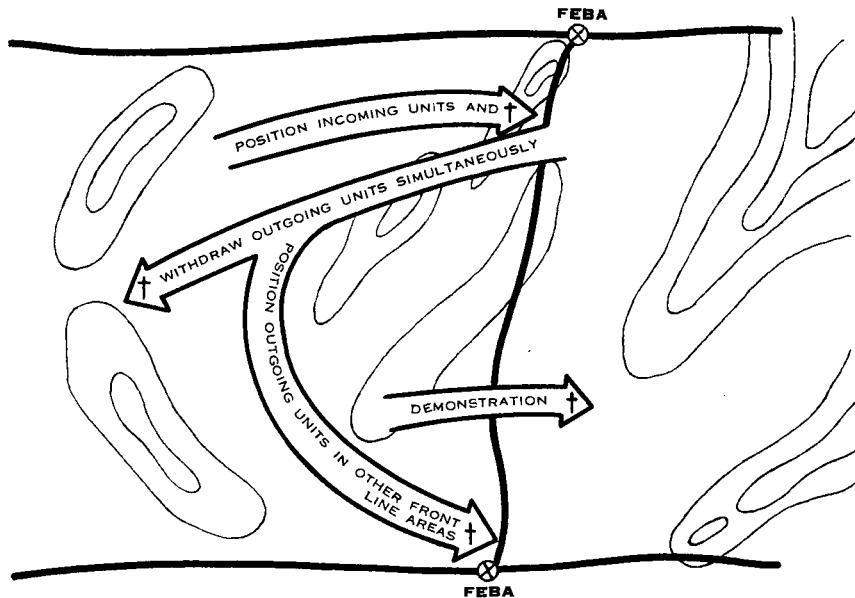


Figure 23. Relief of frontline units.

## **123. Operations Common to Offense and Defense**

### *a. Defense Against Airborne Attack (fig. 22).*

- (1) Air-landed forces may be employed effectively to counter an enemy airborne attack since they possess the same characteristics of speed and flexibility in choice of objectives as the enemy airborne force. However, air-transported forces lack armor and organic heavy fire support which are two effective means for combating airborne forces. Consequently, mobile striking forces and mobile reserves employed against enemy airborne forces include armor and heavy fire support in addition to air-transported forces. If the enemy is capable of landing airborne forces, he probably will have strong air support capable of interfering with friendly ground and air movement. Normally, therefore, air-landed forces employed in the antiairborne role require friendly air cover.
- (2) Air-landed forces may be employed in all phases of the antiairborne defense. Initially, they conduct patrols and establish observation posts to locate the enemy and set up roadblocks to delay his movement. As part of the mobile reserve, they are committed when the enemy main landing is located. To prevent the loss of critical terrain, they may land directly on the enemy airhead. This type of counterattack achieves the greatest surprise and most immediate disruption of enemy plans. The disadvantages are the greater landing losses, the need for special training of the air-landed force to prepare it for the unusual tactical situation in the objective area, and the necessity of landing without advanced pathfinder assistance. Also, little time is available for determining the enemy situation. This disadvantage is partially offset by prior planning to select objectives, landing zones, landing sites, and routes for counterattacks in critical localities.

### *b. Operations Against Infiltration and Guerilla Action (figs. 15 and 20).*

- (1) Air-landed forces are particularly suited to operations against enemy infiltrators and guerillas. In daytime, reconnaissance aircraft are employed to locate infiltrators from the air and air-landed patrols follow up by investigating suspicious localities on the ground and destroying or capturing any enemy infiltrators discovered. During periods of limited visibility, tactical transport aircraft position and support outposts and patrols,

especially in difficult terrain likely to be used by infiltrators. Air-landed forces can be used with economy in operations against guerillas. Small numbers of troops can patrol extensive areas, and centrally located reserves can surprise guerilla bands in their hideouts or they can be employed rapidly to reinforce installations and columns under attack. Guerilla tactics of blocking routes of reinforcement when attacking installations or ambushing columns are readily combated by air-transported reinforcements.

- (2) Air-landed forces exploit their mobility by attacking guerilla bases of operations which usually are located in mountains, jungles, swamps, or other difficult terrain. During encircling operations against guerilla forces, air-transported forces may be employed to simultaneously block all avenues of escape. The considerations for using air-landed forces against enemy infiltrators and small guerilla bands are generally the same as for their employment with security forces. When operating against large guerilla concentrations, air-transported forces may lack support from armor and artillery not part of the air-transported force. Since guerillas normally are deficient in these same weapons as well as in ground transport, air-transported forces are on more equal terms when fighting guerillas than they are when fighting regular ground forces.
- (3) Because of the importance of air-landed forces in operations against guerillas, installations of aviation units may be high priority targets for guerilla attack or sabotage. The lack of trained pathfinders or the need for secrecy may require that friendly partisans be trained, equipped, and employed as pathfinders.

*c. Night Operations.*

- (1) Air-landed forces may be employed effectively at night in any of the types of operations described in this chapter. They are less vulnerable to enemy ground and air fires, and the enemy has greater difficulty in determining the location of the main landing than in daylight operations. Small air-transported units landing simultaneously at widely separated points may block movement, disrupt communications, and create general confusion while other ground or air-landed operations are conducted.
- (2) Night operations present certain disadvantages and special problems in comparison to daylight operations. Both

ground units and transport aviation units require a higher state of training than for daylight operations. In selecting landing zones, greater stress is given to characteristics that assist landing than to placing units on or adjacent to objectives. Ground units normally assemble after landing before proceeding on their missions, so assembly aids may be necessary. Pathfinders at landing zones and sites and special aids to navigation are more necessary for movement and landing than in daytime. Time and distance are increased between flight serials that use the same landing zones. The distance between aircraft in a formation is increased for flight safety. Landing sites need to be larger or flight units smaller than those used in daylight operations. Routes are more direct to facilitate navigation. The possibility of friendly and enemy use of artificial illumination, including infrared devices, is considered when planning for night operations.

*d. Operations Under Conditions of Atomic Warfare (fig. 24).*

- (1) *General.* Transport aircraft can rapidly concentrate forces that have been dispersed for protection against friendly or enemy nuclear weapons. Air-landed patrols, including pathfinders, can investigate an atomic target immediately after the explosion to measure radiation hazards, the numbers and condition of survivors, and other results.
- (2) *Exploitation of friendly use.* Transport aircraft can withdraw forces in contact with the enemy just prior to friendly use of atomic weapons. Exploiting air-landed forces can bypass obstacles created by an atomic strike, whether their objective is within or beyond the target area.
- (3) *Defense against enemy use.* In the event of enemy atomic attack, air-landed forces move into the target area after the explosion to forestall enemy exploitation of its effect. They can also promptly remove casualties from the target area direct to rear area medical installations. The mobility afforded by transport aircraft permits rapid dispersal of units after objectives are seized, and enables the dispersed units to cover greater intervals between each other. This mobility also makes it more difficult for the enemy to locate and attack targets.
- (4) *Special considerations.* Plans for timing air-landed operations with atomic explosions must take into account the effect of the intense light on the pilot's eyes, the dis-

tance from ground zero for safety from primary effects, and the length of time residual radiation will be at dangerous levels. The danger of fallout in the case of a ground burst is considered when selecting approach routes and landing zones. Some landing zones can be made unusable by fallen trees and other debris resulting from an atomic explosion. When the landing zone is contaminated, dust stirred up by the propellers or rotors may be hazardous. Alternate plans are prepared in case a last-minute change of wind direction creates radiation hazards in primary routes and landing zones.

e. *Raid* (fig. 25). The planning for a raid is similar to that outlined in chapter 3. The loading plan should provide for the transportation of prisoners and captured materiel. If the transport aircraft are to be used for the withdrawal, this must be planned for. The aircraft may remain in the objective area to facilitate transportation during the raid or to wait for the withdrawal. The decision to have the aircraft remain in the objective area is based on the concealment available, the duration of the operation, enemy air capabilities, and the radius of action for the aircraft (figuring full loads for delivery and return). The with-

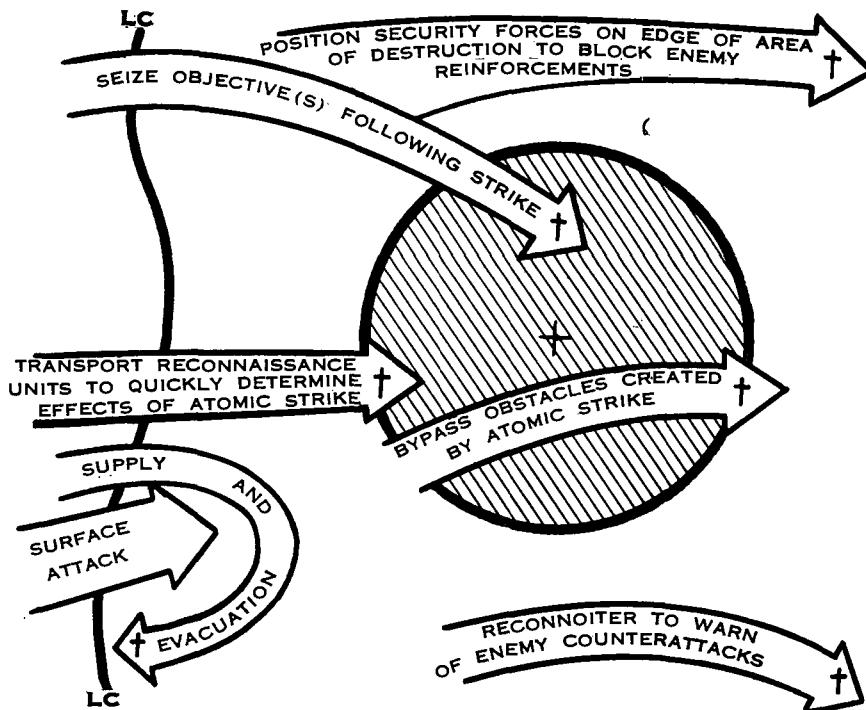


Figure 24. Exploitation of atomic strike.

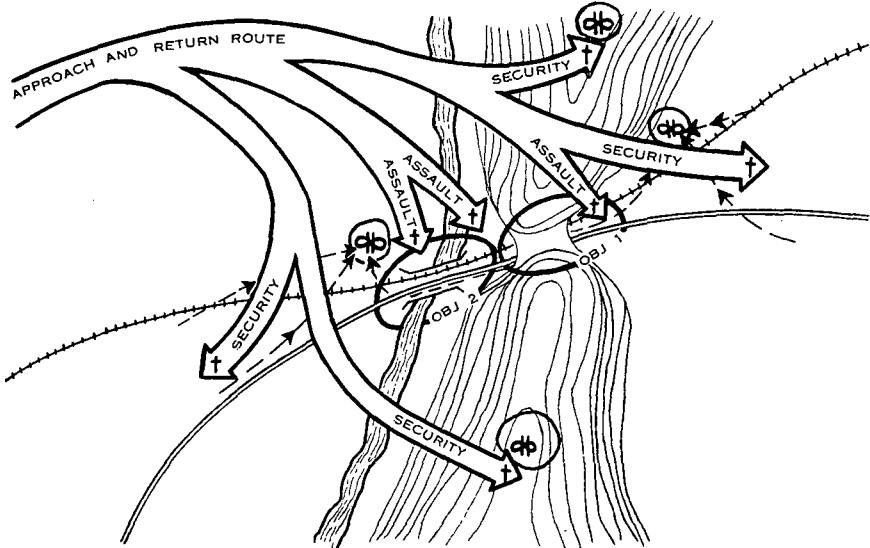


Figure 25. Raid.

drawal loading sites may be close to the objectives because the security units may withdraw on foot toward the objectives after the assault units have accomplished their mission. Or, the raiding force may break up into small groups to rendezvous with the aircraft at a predesignated point some distance from the objectives.

*f. Patrolling* (fig. 26). The considerations involving the use of transport aircraft with reconnaissance and security forces are applicable to patrolling (par. 111). For reconnaissance patrols deep behind enemy lines, additional factors must be considered. High performance reconnaissance aircraft may be used to gain information of the enemy and terrain in the vicinity of the objective for planning purposes. A decision must be made as to whether or not the transport aircraft are to remain in the objective area. It may be necessary to use the aircraft to move the patrol from point to point when the area to be reconnoitered is large and the patrol is small. This use must be weighed with the problem of concealing aircraft movement within the objective area during daylight and darkness, and with the problem of refueling. When the patrol is to be left in the objective area, plans are made for the aircraft to return to a designated place at a designated time to withdraw it. When all or elements of the patrol are to be delivered in the objective area at night or during other periods of

limited visibility, the pilots must be able to navigate, hover, and land without the aid of pathfinders. When deep reconnaissance patrols are planned, secrecy should be insured by moving to the objective area during periods of limited visibility, if suitable navigational aids are available.

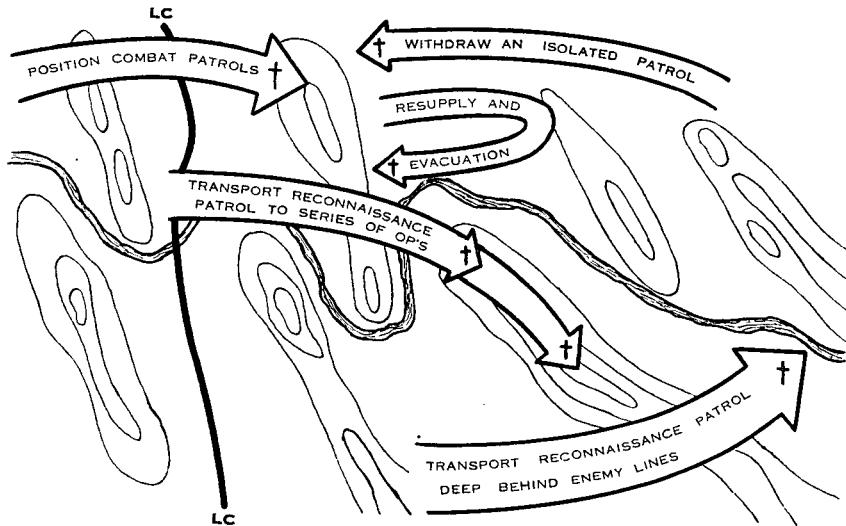


Figure 26. Patrolling.

## 124. Retrograde

a. *Withdrawal From Action* (fig. 27). Transport aircraft can be used to speed up a withdrawal from action, giving the withdrawing units more time to organize their rearward positions. They also make it easier to extricate covering forces. In daylight withdrawals, the aircraft may be used to move frontline units from their assembly area behind the local covering forces. In night withdrawals where secrecy is required, the use of the aircraft may be limited to withdrawing the detachments left in contact after the main force has successfully broken contact and moved to the rear. The elements of the covering force that cannot be withdrawn by aircraft withdraw simultaneously on the ground. Some fire support elements remain in position long enough to cover the withdrawal unless it can be covered by fire from the next position to the rear. This type of operation requires detailed plans, thorough daylight reconnaissance, and careful timing. Considerations for the withdrawal of elements in close contact with the enemy are similar to those for withdrawal of isolated units (par. 117).

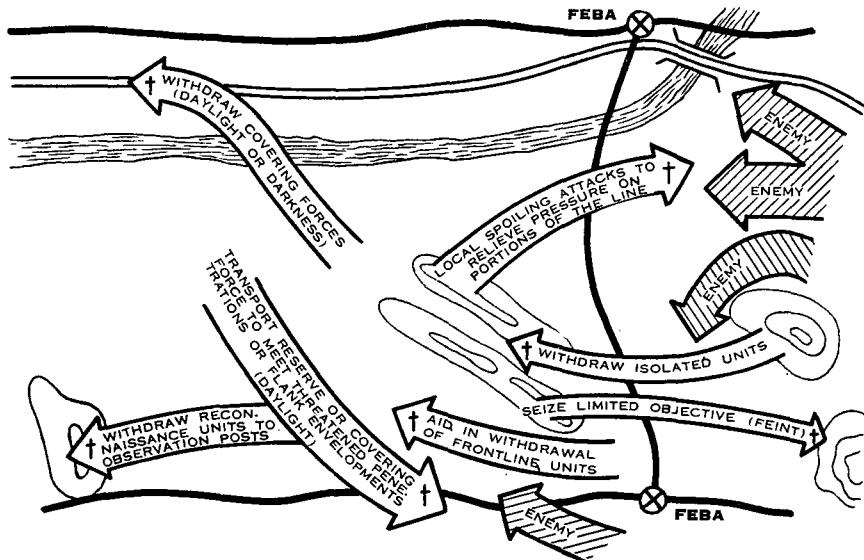


Figure 27. Withdrawal from action.

b. *Delaying Action* (fig. 28). . A force conducting a delaying action can use terrain and time to maximum advantage with the aid of transport aircraft. A strong delaying position may be held in spite of enemy envelopment, thus forcing the enemy to deploy and attack. Since the withdrawal of air-transported forces is independent of the road net, these forces can be employed in flanking positions adjacent to the enemy route of advance, forcing him to pause, turn, and deploy before continuing his advance. Such a maneuver may be integrated with an action on a delaying position astride the enemy route of advance or with a covering force action between positions. Obstacles may be placed in front of successive positions without interfering with air-transported forces on delaying positions to the front. As in other operations on wide frontages, air-landed forces are effective as security elements and mobile reserves. Forces can move to the rear by air much more rapidly than forces restricted to ground movement. Small air-landed units are ideally suited for harassing action between successive positions.

c. *Retirement* (fig. 29). Transport aircraft are used with a retiring force much as they are used in a movement to contact. When the retiring force moves to the rear in multiple columns, air-landed patrols maintain contact between the columns. Security elements closest to the enemy, such as rear and flank guards, have the highest priority on transport helicopters. When there are enough aircraft, they may move major elements of the retiring force to the rear to gain distance from the enemy.

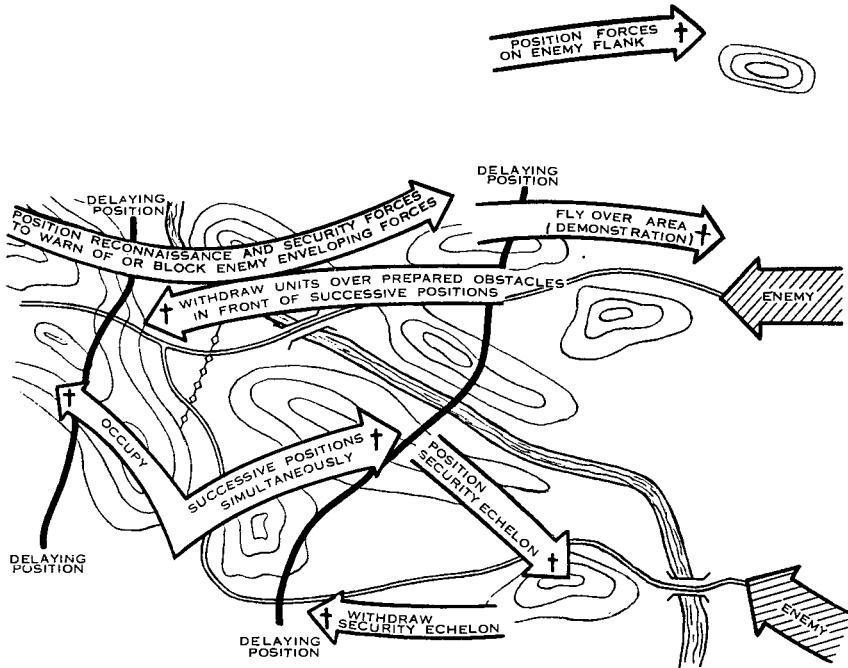


Figure 28. Delaying action.

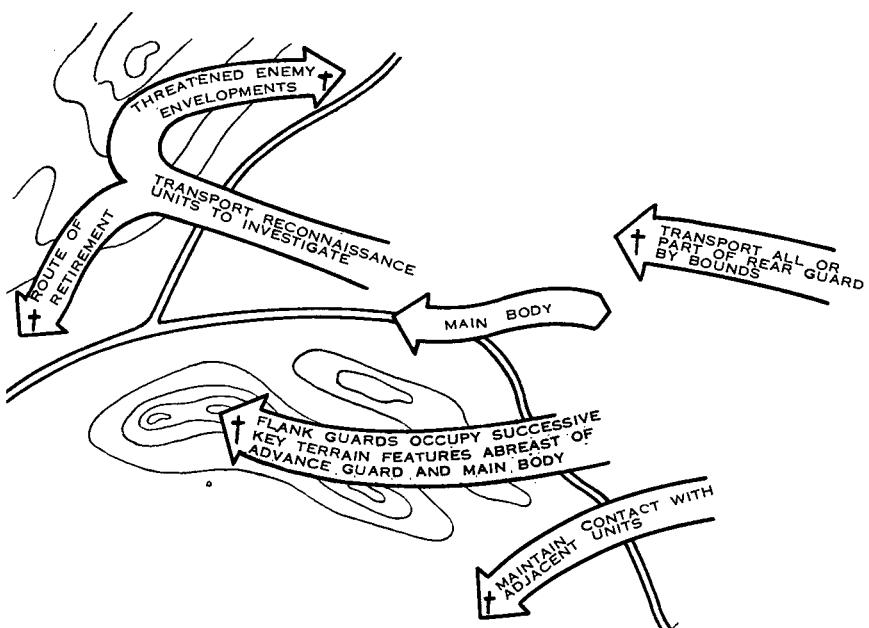


Figure 29. Retirement.

## 125. Amphibious Landing

In an amphibious operation (fig. 30), transport aircraft may be employed in both the assault and general unloading phases of the ship-to-shore movement as well as within the beachhead. In the assault phase, plans are developed as outlined in chapters 3 and 4 for seizing an airhead behind enemy lines. The use of transport aircraft within the beachhead closely resembles their employment in joint airborne operations. Consideration must be given to timing the air-landed assault with the amphibious landing and coordinating it with naval gunfire. Special navigation aids, such as buoys and electronic equipment on ships, are required for controlling movements over water. The size of the transport aircraft used may be limited by the dimensions of the aircraft carrier's elevator and other carrier characteristics. Air-transported forces and transport aviation unit personnel must be well rehearsed in aircraft carrier loading and takeoff procedures. It may not be possible to carry the transport aviation unit and all the troops to be air-transported together on the same aircraft carriers. After the initial assault elements are lifted from the aircraft carriers, succeeding elements of the air-landed force must be transferred to the carriers unless they can be picked up by helicopter from the ships in which they were originally transported.

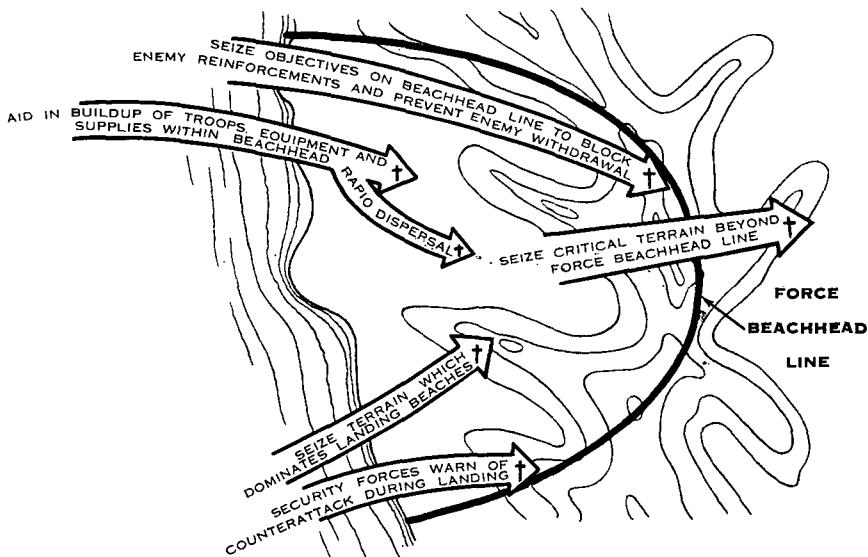


Figure 30. Tactical transport aircraft in amphibious operations.

## **Section IV. SPECIAL OPERATIONS**

### **126. General**

The terrain and extreme weather conditions that characterize mountain, desert, jungle, and arctic operations, retard movement and place a great deal of strain on equipment and human endurance. The employment of transport aircraft, particularly helicopters, facilitates movement and reduces the time that troops and equipment are exposed to these stresses. The uses of air-transported forces and transport aircraft in special operations are the same as those described in paragraphs 119 through 125. Special planning considerations are discussed in this section.

### **127. Mountain**

a. Transport helicopters can place a security echelon on critical heights and at distances unattainable for troops moving on the ground. Within their altitude limitations, helicopters are valuable as prime movers for direct fire support weapons. They can move these weapons with ease to dominating terrain. Army transport aviation can be used to provide observation over wide areas to the front of friendly forces and to perform surveillance missions between friendly strong points. Dead spaces in radio reception may be overcome by establishing airborne retransmission stations, and helicopters may be used to lay wire over otherwise inaccessible terrain.

b. Due to inadequate road nets, logistical support may depend entirely on Army transport aircraft. Resupply and evacuation installation sites may be farther from the line of contact, and supplies can be placed closer to the location where they are needed (par. 116).

c. When formulating plans for operations in the mountains, the possibility of sudden changes in weather must be considered. Alternate plans are prepared and alternate positions for air-transported forces are selected in the event the first choice becomes unattainable due to adverse weather. Large landing zones are rare because of rough terrain; therefore, if a large force is to occupy only a few terrain features, it may have to be shuttled into position. The technical factors to be considered in selecting landing sites are the direction of wind drafts, snow- and ice-covered slopes (which require external cargo and troops to be unloaded while the helicopters hover), adequate space for the rotor blades (so they will not strike a mountainside), and the necessity for pathfinders (to mark routes and landing sites for safe movement and night landings). Approach and return routes are selected to

take full advantage of the defilade and concealment afforded by mountains.

*d.* The actions of small, semi-independent units in seizing or defending heights which dominate lines of communication, or in fighting to seize or block passes and defiles on routes of communication, are of increased importance. Special clothing for personnel and equipment for aircraft must be specified and issued before the operation. Troops must be thoroughly familiar with the use and maintenance of these special items. The techniques of recovering aerial-delivered supplies and the selection, preparation, and operation of landing sites, drop zones, and loading sites must be understood by the units (par. 5 of app. VI).

## **128. Jungle**

*a.* When formulating plans for operating in a jungle, emphasis is placed on providing mobility through the employment of Army transport aviation. The ability of reconnaissance and security forces to cover large areas of surveillance in transport aircraft permits the commander to select more dispersed objectives. Because of the dense vegetation in the jungles, observed fire support of an air-landed operation from fire support units behind friendly lines and from units within the objective area is limited. The range of air-landed operations should be short if a ground linkup is to be made early. As in mountains, suitable landing zones are few, and a shuttle system may have to be employed, using transport helicopters. Landing zones should be selected close to objectives to take advantage of the concealment afforded by the jungle and to reduce the distance necessary for movement on foot through the dense undergrowth. Waterways provide a means of communication and are an aid to navigation; these factors should be considered when selecting objectives.

*b.* Supply and evacuation may be completely dependent on Army transport aviation. Fewer resupply and evacuation installations are required in the forward areas when forces are supported by transport helicopters. Prescribed loads are determined and supplies are palletized when necessary to facilitate loading and unloading (par. 116).

*c.* These techniques can be considered for jungle use: troops can descend from hovering helicopters by ropes, rope ladders, or by parachute; loads can be released while the helicopters are hovering over a drop zone; smoke or panels in trees can be used to mark landing or drop zones and landing sites. Panels dropped from pathfinder aircraft can be used to mark flight corridors.

## **129. Arctic**

a. Enemy installations and critical terrain features that dominate enemy routes of communication and supply are appropriate objectives for air-landed forces in the arctic. Air-landed advance and flank guards can avoid much of the fatigue caused by foot movement in snow. Aircraft enable reconnaissance and security forces to survey wide areas during the short span of daylight. Air-landed task organizations are small and compact for arctic operations, and transport aircraft can place fire support weapons closer to or within the objective area to avoid the difficulties of overland movement. Strong winds and blowing snow may interfere with or prevent the use of aircraft, so alternate plans for operating without them should be made. The brief period of daylight and the Aurora Borealis, which interferes with or prevents the use of radio communication, should be considered in timing the operation. Suitable landing zones are plentiful in the arctic, except in the mountains. Approach and return routes should take advantage of the defilade and concealment of any rough terrain in the area. Operations logically supported by transport aircraft can be executed at far greater ranges than those supported by ground means, and fewer intermediate installations that are vulnerable to enemy raiding forces are needed.

b. These techniques are appropriate for arctic operations: landing sites can be marked so they can be recognized when terrain features are blanketed or their appearance is changed by heavy snowfall; navigational aids must be planned to overcome the effect of "white-out" (loss of reference due to the skyline merging with the snow covered terrain). Shelters must be provided for maintenance personnel. Portable homing devices should be provided, as some areas are not mapped and recognizable check points are few. Army transport aircraft must be completely winterized, and preheating may be necessary. Pilots of fixed-wing aircraft should be trained in the operation of ski, wheeled, and/or float equipped aircraft. During the summer months, floats permit the many lakes and streams in the arctic and subarctic to be used as readymade landing zones. During the winter, these same lakes and streams, ice-covered, may be used as landing zones by ski-equipped aircraft. During the breakup and freezeup periods, neither ski nor floats are usable; operations are restricted to wheeled aircraft, using available landing and takeoff areas (par. 5e of app. VI).

## **130. Desert**

The highly mobile reconnaissance and security units necessary in desert operations can be provided by making them air-trans-

ported. If satisfactory navigational aids are available, aircraft can be employed successfully at night—a factor to be considered in timing an operation. Unobstructed landing zones large enough for mass landings are plentiful. Because of the lack of vegetation, only mountainous desert areas offer any concealment for approach and return routes. Transport aircraft can resupply and evacuate combat, reconnaissance, and security forces, making it possible to decrease the number of lines of communication. These techniques are appropriate for desert operations: oil or a similar substance can be used on landing and loading sites to minimize the operational difficulties caused by dust and sand; pathfinders can use navigational aids such as smoke, panels, and electronic devices on routes and landing zones to overcome the difficulty of terrain orientation (par. 4 of app. V).

## **CHAPTER 7**

### **TRAINING**

---

#### **Section I. RESPONSIBILITIES**

##### **131. Field Army Commander**

The appropriate field army commanders are responsible for transport aviation unit training and their training with other army units.

##### **132. Air-Transported Force Commander**

The air-transported force commander sees that troops of his command are adequately trained for an air-landed operation. This includes training in loading and securing equipment; troop movement; selecting and preparing loading and landing sites; troop safety; assembly techniques; and the planning and conduct of air-landed operations.

##### **133. Transport Aviation Unit Commander**

Transport aviation unit commanders are responsible for individual proficiency within their organizations and the training of the unit to insure efficient teamwork with the supported arms and services.

#### **Section II. AIR-TRANSPORTED FORCES**

##### **134. General**

Units that are to participate in air-landed assaults must attain maximum combat efficiency. They must be capable of planning and executing day and night air-landed assault operations. Units that are proficient in the conduct of normal tactical operations can conduct a movement by transport aircraft with the additional ground tactical training outlined in the following paragraphs.

##### **135. Scope of Training**

a. Individual training, in addition to normal ground training, includes psychological preparedness, familiarization with aircraft, the preparation of bulk items for interior and exterior loading,

loading and unloading techniques, troop safety, and assembly techniques. Training in defense against radioactivity should be emphasized when there is a possibility that either side will use atomic weapons.

b. Unit training peculiar to air-landed operations includes training in the selection and control of loading areas and sites, unit loading of aircraft for safe flight, techniques for mass delivery and assault landings, assembly after landing, familiarization with the planning and conduct of air-landed operations, special measures for antitank defense, and special problems of administration and logistics.

c. Command and staff training includes the techniques of preparing air-landed operation orders, annexes, and air movement forms; the selection and control of loading areas and sites and landing zones and sites; the selection of flight routes and air movement control; the organization and functions of other participating units; the organization and employment of pathfinders; communication procedures and techniques; logistical procedures; and the conduct of tactical operations.

d. The training of attachments (air liaison teams, forward air controllers, naval gunfire liaison teams, shore fire control parties, intelligence and military government teams) is integrated with that of ground units.

### **136. Sequence of Training**

The following is the best training sequence for air-landed operations:

a. Orientation of commanders and senior staff officers on air-landed operations as opposed to ground operations.

b. Individual instruction in troop safety, drills in loading and unloading personnel, drills in loading and unloading equipment, and instruction in assembly techniques.

c. Unit practice in loading and unloading heavy equipment, and in assembling.

d. Specialist training for personnel required to assist in air traffic control in loading areas and landing sites, and palletizing and preparing bulk supplies and equipment.

## **Section III. TRANSPORT AVIATION UNITS**

### **137. General**

The success of an air-landed operation is related to the proficiency of the personnel participating in the operation. Particular

emphasis must be placed on planning, supervising, and executing the training program for Army aviation units.

### **138. Individual Training**

Individual training, in addition to normal flight training, includes familiarization with the tactical planning of participating forces, competency in night and reduced visibility formation flying, navigational proficiency in contour formation flying, and confined area operations under maximum load conditions.

### **139. Unit Training**

Unit training includes unit control of individual aircraft and flight units, marking aircraft to assist in locating and identifying specific aircraft for loading, and control of formations in flight over long routes and in congested traffic patterns at loading areas and landing zones.

## **Section IV. REHEARSALS**

### **140. General**

Rehearsals are desirably an integral part of the preparations for an air-landed operation. They should be staged under conditions paralleling those to be encountered in the operation. Rehearsals are held from platoon to battle group level as time and facilities permit.

### **141. Specific Instruction**

Security considerations and lack of equipment and practice areas may limit the size of rehearsals or necessitate acceptance of artificial conditions. Ideally, each rehearsal would include practice in the following:

- a. Occupying assembly areas.
- b. Moving to and loading aircraft at loading sites.
- c. Unloading aircraft.
- d. Communication procedures.
- e. Assembly and control procedures after landing.
- f. Executing the tactical plan.
- g. Supply and evacuation procedures.

## **APPENDIX I**

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### **REFERENCES**

- AR 220-50              Regiments—General Provisions.
- AR 220-70              Companies—General Provisions.
- AR 320-50              Authorized Abbreviations.
- DA Pam 108-1           Index of Army Motion Pictures, Filmstrips,  
                          Slides, and Phono-Recordings.
- DA Pam 310-3           Index of Training Publications.
- DA Pam 310-5           Index of Graphic Training Aids and Devices.
- SR 320-5-1              Dictionary of United States Army Terms.
- FM 6-18                 Field Artillery Mortar Battery, Infantry Division.
- FM 7-21                 Headquarters and Headquarters Company,  
                          Infantry Division Battle Group.
- FM 21-5                 Military Training.
- FM 21-30                 Military Symbols.
- FM 21-40                 Defense Against CBR Attack.
- FM 21-41                 Soldier's Manual for Defense Against CBR  
                          Attack.
- FM 57-30                 Airborne Operations.
- (C) FM 101-10           Staff Officers' Field Manual, Organization,  
                          Technical, and Logistical Data.
- TM 57-210                 Air Transport of Troops and Equipment.
- TM 57-220                 Technical Training of Parachutists.
- (C) ACP 129               \*Communications Instructions, Visual Signaling  
                          Procedures (U).
- ACP 136                 \*Communications Instructions, Panel Signaling.
- ACP 168(A)               \*Communications Instructions, Pyrotechnic  
                          Signals.

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\*These Allied Communications Publications are indexed in (C) JANAP 201, Status of Noncryptographic JANAP's and ACP's.

## APPENDIX II

### ARMY TRANSPORT AIRCRAFT

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#### **1. General**

- a.* The aircraft characteristics shown in this appendix are intended only as a guide.
- b.* Allowable cargo loads and maximum ranges vary greatly with the temperature, elevation, wind, aircraft model, and other variables at the time of a mission. It must therefore be understood that these variables preclude the possibility of providing here a figure for the allowable cargo load that will always remain constant. (The transport aviation unit representative will provide the transported force commander with the exact allowable cargo load figures during the planning phase of each mission.)
- c.* The figure given for the maximum number of troop seats should be used as a guide figure only in load planning. The force commander coordinates with the aircraft unit representative to establish the number of seats that may be used on a specific mission.
- d.* See appendix IX for examples of the number of aircraft, by type, needed to lift a typical battle group organization.
- e.* The takeoff distances given in this appendix are for improved landing strips.

#### **2. H-19 Helicopter (Utility)**

(fig. 31)

- a. Description.* The H-19 is a single engine, utility type helicopter.
- b. Speed.* Cruise, 80 knots.
- c. Allowable Cargo Load/Radius.* 1,700#/50 nautical miles.  
1,400#/100 nautical miles.
- d. Cargo Transport provisions.*
  - (1) Cargo compartment:
    - (a) Length: 10 feet.
    - (b) Width: 5 feet, 6 inches.
    - (c) Height: 6 feet.

- (2) Cargo door: A square sliding door, 48 inches x 48 inches, on the right side at the front of the cabin.
- (3) External sling capacity: 2,000 pounds (structural limit).
- (4) A hydraulically operated hoist capable of lifting 250 pounds for rescue operations. (Structural limit, 400 pounds.)

*e. Troop Transport Provisions.*

- (1) Maximum number of troop seats: 10.
- (2) Maximum number of litters: 6.

*f. Main Rotor Diameter.* 53 feet.

*g. Maximum Gross Weight.*

H-19B.....	7,500 pounds
H-19D.....	7,500 pounds

*h. Endurance.* 3.25 hours.



*Figure 31. H-19 helicopter (utility).*

### **3. H-21C Helicopter (Light)**

(fig. 32)

*a. Description.* The H-21C is a single engine, tandem rotored, light transport helicopter.

*b. Speed.* Cruise, 85 knots.

*c. Allowable Cargo Load/Radius.* 3,000 #/50 nautical miles.  
2,400 #/100 nautical miles.

*d. Cargo Transport Provisions.*

(1) Cargo compartment:

(a) Length: 19 feet, 9 inches.

- (b) Width: 5 feet, 8 inches (floor width, 4 feet, 7 inches).
- (c) Height: 5 feet, 3 inches.
- (2) Cargo door: A rectangular sliding door on the left side at the rear of the cabin (5 feet x 3 feet, 9 inches).
- (3) External sling capacity: 5,000 pounds (structural limit).
- (4) A hydraulically operated hoist, capable of lifting 250 pounds for rescue operations, may be installed forward and above the rescue door on the right side at the front of the cargo compartment. This hoist has 100 feet of usable cable.

*e. Troop Transport Provisions.*

- (1) Maximum number of troop seats: 20.
- (2) Maximum number of litters: 12.

*f. Rotor Diameter.* 44 feet.

*g. Maximum Gross Weight.* 13,500 pounds.

*h. Endurance.* 3.5 hours.



*Figure 32. H-21C helicopter (light).*

#### **4. H-34 Helicopter (Light)**

(fig. 33)

- a. Description.* The H-34 is a single engine, light transport helicopter.
- b. Speed.* Cruise, 80 knots.
- c. Allowable Cargo Load/Radius.* 3,000 #/100 nautical miles.  
4,300 #/50 nautical miles.
- d. Cargo Transport Provisions.*

(1) Cargo compartment:

(a) Length: 11 feet, 6 inches.

(Compartment length is 13 feet, 7 inches, but utilization of entire length may block internal access to pilot's compartment.)

(b) Width: 5 feet, 5 inches.

(c) Height: 6 feet.

(2) Cargo door: 4 feet, 5 inches by 4 feet, on the right side of the cargo compartment.

(3) External sling capacity: 4,000 pounds.

e. *Troop Transport Provisions.*

(1) Maximum number of troop seats: 12.

(2) Maximum number of litters: 8.

Expected modification will permit seating 18 troops.

f. *Rotor Diameter.* 56 feet.

g. *Maximum Gross Weight.* 13,300 pounds.

h. *Endurance.* 3.5 hours.

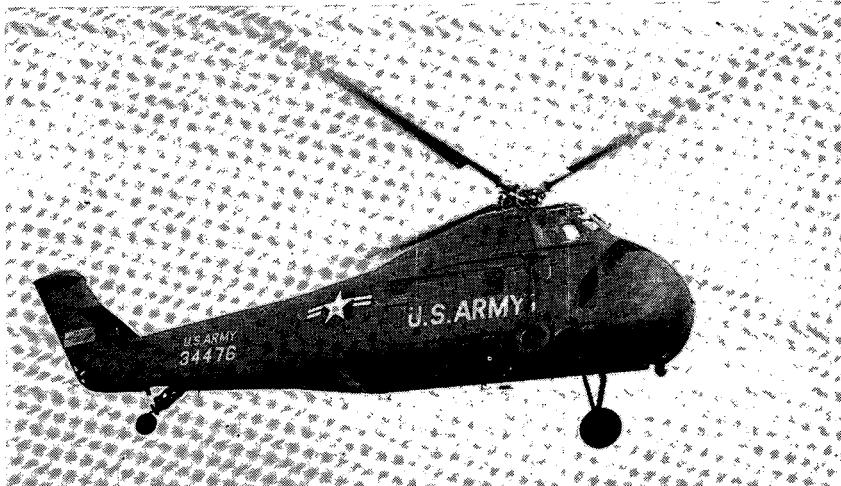


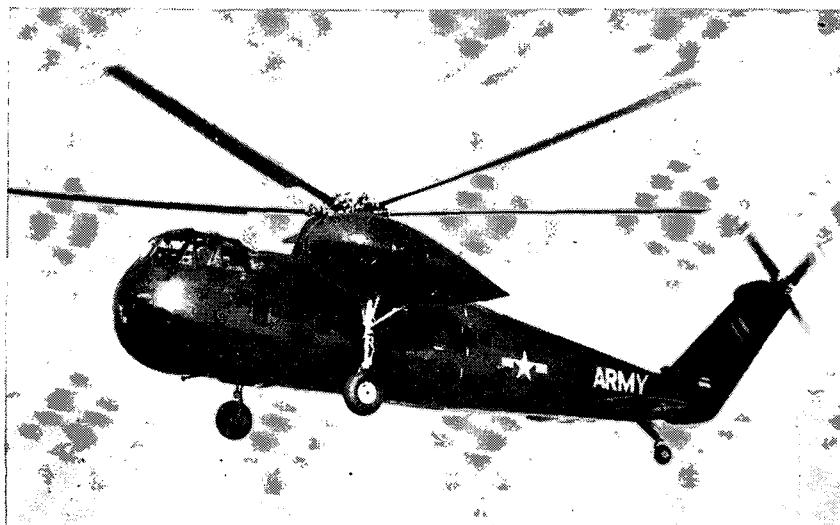
Figure 38. H-34 helicopter (light).

## 5. H-37 Helicopter (Medium)

(fig. 34)

a. *Description.* The H-37 is a twin engine, medium transport helicopter.

- b. Speed.* Cruise, 100 knots.
- c. Allowable Cargo Load/Radius.* 6,000#/50 nautical miles.  
4,600#/100 nautical miles.
- d. Cargo Transport Provisions.*
  - (1) Cargo compartment:
    - (a) Length: 30 feet, 4 inches.
    - (b) Width: 7 feet, 8 inches.
    - (c) Height: 6 feet, 8 inches.
  - (2) Cargo doors:
    - (a) Nose door (clamshell):
      - 1. Width: 9 feet.
      - 2. Height: 6 feet, 8 inches.
    - (b) Side door:
      - 1. Width: 5 feet, 9½ inches.
      - 2. Height: 6 feet.
  - (3) Cargo loading hatch:
    - (a) Location: Center of cabin floor.
    - (b) Dimensions: 6 feet x 4 feet.
  - (4) Cargo handling facilities:
    - (a) Monorail—capacity: 2,000 pounds.
    - (b) Electric winch.
  - (5) External sling capacity: 10,000 pounds.
- e. Troop Transport Provisions.*



*Figure 34. H-37 helicopter (medium).*

(1) Maximum number of troop seats: 23 (Expected modification will permit seating of 34 troops).

(2) Maximum number of litters: 24.

f. Rotor Diameter. 72 feet.

g. Maximum Gross Weight. 31,000 pounds.

h. Endurance. 1.25 hours.

## 6. U-1A Utility Airplane (Otter)

(fig. 35)

a. Description. Single engine, high wing, utility aircraft.

b. Speed. Cruise, 115 knots (5,000 ft.).

c. Allowable Cargo Load/Radius. 2,600#/100 nautical miles.  
1,600#/400 nautical miles.

d. Cargo Transport Provisions.

(1) Cargo compartment:

(a) Length: 12 feet, 8 inches.

(b) Width: 4 feet, 4 inches forward, 3 feet, 2 inches aft.

(c) Height: 5 feet.

(2) Cargo door (double door):

(a) Width: 46½ inches.

(b) Height: 45 inches.

(3) Takeoff distance required:

(Fully loaded—standard day).	Open field—860 feet. Clear—50 feet; obstacle— 1,720 feet.
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e. Troop Transport Provisions.

(1) Maximum number of seats: 9.

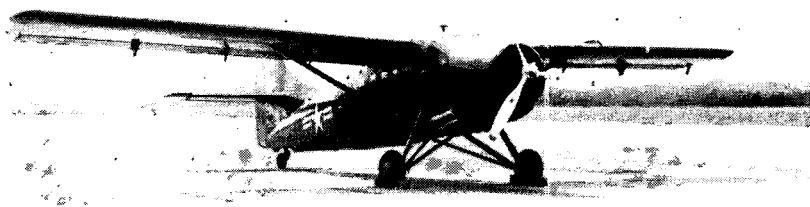


Figure 35. U-1A utility airplane (Otter).

- (2) Maximum number of litters: 6.  
Expected modifications will permit seating of 11 troops.

*f. Dimensions.*

- (1) Wing span: 58 feet.  
(2) Overall length: 41 feet, 10 inches.

## **7. L-20 Utility Airplane (Beaver)**

(fig. 36)

- a. Description.* Single engine, high wing, utility aircraft.  
*b. Speed.* Cruise, 115 knots.  
*c. Allowable Cargo Load/Radius.* 1,100#/200 nautical miles.  
*d. Cargo Transport Provisions.*

- (1) Cargo compartment:  
(a) Length: 5 feet, 8 inches.  
(b) Width: 4 feet.  
(c) Height: 4 feet forward; 3 feet, 5 inches aft.  
(2) Cargo door:  
(a) Width: 4 feet, 5 inches at bottom narrowing to 1 foot,  
5 inches at top.  
(b) Height: 3 feet, 5½ inches.  
(3) Takeoff distance required: Open field—680 feet.  
(Fully loaded—standard Clear—50 feet; obstacle—  
day). 960 feet.

*e. Troop Transport Provisions.*

- (1) Maximum number of seats: 5.  
(2) Maximum number of litters: 2 litters, plus 2 ambulatory patients.

*f. Dimensions.*

- (1) Wing span: 48 feet.  
(2) Overall length: 30 feet, 5 inches.



*Figure 36. L-20 utility airplane (Beaver).*

## **APPENDIX III**

### **OPERATION ORDER AND ANNEXES**

---

#### **1. Explanation**

The sample operation order and annexes in this appendix are based on an air-landed mission involving a battle group. For a large operation and when time is available, the planning may be this detailed, but for air-landed operations of lesser scope and when less time is available, the planning can be accomplished with less detail.

## 2. Sample Operation Order

### CLASSIFICATION

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
XV531

#### Operation Order 12

Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4

#### 1. SITUATION

- a. Enemy forces: Annex A, Intelligence.
- b. Friendly forces:
  - (1) I Corps attacks north 030500 Oct, establishes a bridgehead over the DROME River for further advance to the north.
  - (2) 10th Inf Div (-1st BG, 87th Inf) attacks 030500 Oct, penetrates enemy defenses, follows and supports 2d Armd Div when passed through.
  - (3) 2d Armd Div passes through 10th Inf Div (-) on Corps order, links up with 1st BG, 87th Inf by 031900 Oct and expands the bridgehead over the DROME River.
  - (4) First TAF supports.
  - (5) Annex B, Operation Overlay.
- c. Attachments and detachments:
  - (1) 1st Avn Bn (Trans) (reinf) under operational control of 1st BG, 87th Inf, 021800 Oct.
  - (2) 5th Area Support Plat, Fwd Comm Co, 10th Sig Bn, attached 021800 Oct.

#### 2. MISSION

1st BG, 87th Inf, by helicopterborne assault beginning 030600 Oct, seizes railroad and highway bridge vicinity LIVRON SUR DROME (4659); seizes, organizes and defends airhead astride DROME River until linkup with 2d Armd Div; passes to control CG, 2d Armd Div on linkup; reverts to control CG, 10th Inf Div on order.

#### 3. EXECUTION

- a. Concept of operation: 1st BG, 87th Inf lands by transport helicopter in seven serials, employing 4 rifle companies in the assault, 2 rifle platoons Co C in Battle Group Reserve. Seizes Obj 1, 2, 3, 4 and 5 and defends airhead until linkup with 2d Armd Div.
- b. Co A:  
Attached: Assault Gun Plat (106mm Rifle).
  - (1) Land in sector and seize Obj 2.
  - (2) Seize and defend airhead line in sector.
- c. Co B:  
Attached: Recon Plat.
  - (1) Land in sector and seize Obj 1 and 5.
  - (2) No less than 1 reinforced rifle platoon will remain at bridge.
  - (3) Seize and defend airhead line in sector.
- d. Co C:  
(1) Two rifle platoons, Battle Group Reserve immediately upon landing.  
(2) Land in sector and seize Obj 4.  
(3) Seize and defend airhead line in sector.
- e. Co D:  
(1) Land in sector and seize Obj 3.  
(2) Seize and defend airhead line in sector.

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(Opn O 12 -- 1st BG, 87th Inf)

- f. Mort Btry:
  - (1) General support.
  - (2) Annex C, Fire Support Plan.
- g. Assault Gun Plat: Attached to Co A.
- h. Recon Plat: Attached to Co B.
- i. 1st Avn Bn (Trans) (Reinf):
  - (1) Support movement of 1st BG, 87th Inf to objective area.
  - (2) Annex D, Air Movement Plan.
- j. Followup Echelon:
  - Join Hq Co, 10th Inf Div 021800 Oct.
- k. Battle Group Reserve: 2 rifle plat, Co C.
  - (1) Be prepared to assist in accomplishment of battle group missions in priority Co B, Co A, Co D, Co C.
  - (2) Prior to arrival at RP, be prepared to land on any LZ on order.
- l. Coordinating Instructions:
  - (1) Annex E, Air Loading Plan.
  - (2) Annex F, Air Loading Table.
  - (3) Annex G, Ground Linkup Plan.
  - (4) Annex H, Followup Echelon.
  - (5) Annex I, Task Organization.
  - (6) Attachments effective 020800 Oct.
- 4. ADMINISTRATION AND LOGISTICS  
Annex J, Administrative Order 4.
- 5. COMMAND AND SIGNAL  
Annex K, Communication Plan.

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Annexes: A--Intelligence  
B--Operation Overlay  
C--Fire Support Plan  
D--Air Movement Plan  
E--Air Loading Plan  
F--Air Loading Table  
G--Ground Linkup Plan  
H--Followup Echelon  
I--Task Organization (to be issued)  
J--Administrative Order 4  
K--Communication Plan

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CLASSIFICATION

### 3. Sample Intelligence Annex to an Air-Landed Operation Order

#### CLASSIFICATION

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
T190

Annex A (Intel) to Opn O 12

Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4

#### 1. SUMMARY OF ENEMY INFORMATION

Omitted (refer to current intelligence estimate).

#### 2. ESSENTIAL ELEMENTS OF INFORMATION

Some of the essential elements of information may be:

- a. What is strength, disposition, composition, identity of enemy forces in objective area?
- b. What is condition of reported fording sites over DROME River?
- c. What is status of bridges and approaches thereto over DROME River?

#### 3. RECONNAISSANCE AND OBSERVATION MISSIONS

- a. Orders to subordinate and attached units: In general all subordinate units will consider EEI in paragraph 2 above as basic directives for their collection effort.

In addition, specific orders are:

- (1) Company A--upon reaching objective area reconnoiter DROME River in zone for vehicular fords.
- (2) Reconnaissance Platoon--upon reaching objective area establish and operate observation post vicinity HILL 639.

- b. Requests to higher, adjacent, and cooperating units: 10th Infantry Division--request information as soon as practical regarding:

- (1) Strength, disposition, composition, identity of enemy forces in objective area.
- (2) Location of antiaircraft artillery weapons along route to landing zone.
- (3) Location and strength of armor units in the vicinity of the landing zone or the objective area.
- (4) Obstacles in the objective area which may interfere with the seizure of objective.
- (5) Protective obstacles which may assist us in our assembly and/or movement to the objective area.

Fourth TAF (for details, see appendix I, Air Reconnaissance Plan Omitted).

- (6) Request visual reconnaissance mission as shown in overlay 1 to appendix I.

#### 4. MEASURES FOR HANDLING PRISONERS, CAPTURED DOCUMENTS AND MATERIAL

##### a. Prisoners of War:

- (1) All units will stress intelligence value of POW.
- (2) Captured air crews and guided missile personnel will be reported and evacuated to Battle Group S2 without prior interrogation beyond that necessary to establish their identity.
- (3) All non-Allied personnel will be considered POW until their identity is established by 10th Division G2.
- (4) Routine handling of POW's SOP.

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(Annex A to Opn O 12 -- 1st BG, 87th Inf)

b. Captured Documents:

- (1) Documents found in crashed aircraft or on persons of Air POW's will be evacuated with but not in the possession of the POW.
- (2) Captured enemy codes, ciphers, or cryptographic material of any description will be forwarded immediately to Battle Group S2.
- (3) Normal documents SOP.

c. Captured Material: Name plates on captured material will not be removed.

5. MAPS AND PHOTOGRAPHS

Omitted.

6. COUNTERINTELLIGENCE

a. Military Security:

- (1) Vehicle markings, division and battle group insignia will be removed prior to 020001 Oct.
- (2) Briefings will be conducted on a need to know basis.
- (3) No passes or leaves will be given after 020001 Oct.
- (4) Guard will be placed on unit area commencing 020001 Oct.
- (5) No marked maps, sketches, photos or combat orders carried into objective area with assault echelon.

b. Civil Security:

No civilians will be allowed in unit area after 020001 Oct without special authorization of battle group commander.

c. Censorship:

- (1) No mail pickup after 020001 Oct.
- (2) No press dispatches, photos, or films authorized below battle group headquarters.

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Appendix: 1--Air Reconnaissance Plan (omitted)

Distribution: A

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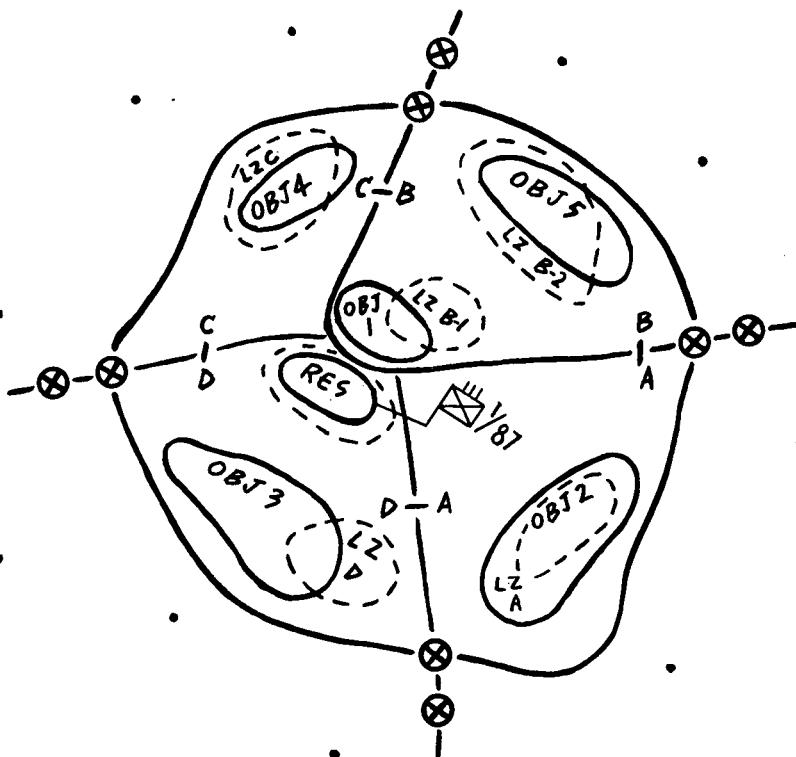
CLASSIFICATION

#### 4. Sample Operation Overlay Annex to an Air-Landed Operation Order (Overlay Not To Scale)

CLASSIFICATION

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
XV101

Annex B (Operation Overlay) to Opn O 12  
Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4.



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Distribution: A

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CLASSIFICATION

## 5. Sample Fire Support Plan Annex to an Air-Landed Operation Order

### CLASSIFICATION

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
XV548

Annex C (Fire Support Plan) to Opn O 12  
Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4

#### 1. SITUATION

- a. Enemy Forces: Annex A, Intelligence, to Operation Order 12.
- b. Friendly Forces:
  - (1) 10th Inf Div (-1st BG, 87th Inf) attacks 030500 Oct, penetrates enemy defenses, follows and supports 2d Armd Div when passed through.
  - (2) 2d Armd Div passes through 10th Inf Div (-) on Corps order, links up with 1st BG, 87th Inf by 031900 Oct and expands the bridgehead over the DROME River.
  - (3) 2d Armd Div Arty reinforces 10th Div Arty until commitment of 2d Armd Div.
  - (4) 1st Gun Bn/60th Arty (155mm SP) general support 10th Inf Div. Reinforce Mort Btry, 1st BG, 87th Inf until linkup.
  - (5) Btry A, 2d How Bn (105mm), 7th Arty general support 2d Div Arty until linkup then reinforce Mort Btry, 1st BG, 87th Inf.
  - (6) Elements First TAF support attack.
- c. Attachments and Detachments: None.

#### 2. MISSION

- 1st BG, 87th Inf, by helicopterborne assault beginning 030600 Oct, seizes railroad and highway bridge vicinity LIVRON SUR DROME (4659); seizes, organizes and defends airhead astride DROME River until linkup with 2d Armd Div; passes to control CG, 2d Armd Div on linkup; reverts to control CG, 10th Inf Div on order. Fire support available to 1st BG, 87th Inf supports the attack.

#### 3. EXECUTION

- a. Concept of Operation: 1st BG, 87th Inf lands by transport helicopter in seven serials, employing 4 rifle companies in the assault, 2 rifle plat, Co C in Battle Group Reserve. Seizes Obj 1, 2, 3, 4, 5 and defends airhead until linkup.
- b. Air Support:
  - (1) First TAF provides fighter sweeps from H-20 minutes to H-1 hour 30 minutes along approach route, over objective area and along return route.
  - (2) Fighter-bombers to strike designated targets in and around 1st BG, 87th Inf objective area from H-20 minutes to H-1 hour and 25 minutes.
  - (3) One flight of fighter-bombers on an alert from H-1 hour until linkup / 1 hour. Missions to be cleared by air coordinator until Battle Group Fire Support Coordinator is in operation in airhead.
  - (4) Fighter-bombers to provide armed reconnaissance along Route National PARIS, north from bombline, from H-hour until linkup / 1 hour.
  - (5) ACT's:  
1st BG, 87th Inf - 1.
- c. Artillery Support:
  - (1) 1st Gun Bn/60th Arty (155mm SP):
    - (a) General support 10th Inf Div, reinforce Mort Btry, 1st BG, 87th Inf until linkup.
    - (b) Schedule two (2) air OP's to cover air column.
    - (c) Position areas - Appendix 1, Fire Support Plan Overlay.

### CLASSIFICATION

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(Annex C to Opn O 12 -- 1st BG, 87th Inf)

- (2) Mortar Battery: General support.
- d. Coordinating Instructions:
  - (1) No fire line (airhead) - Appendix 1, Fire Support Plan Overlay.
  - (2) No fire line (forward of line of contact, surface attack) - as announced.
  - (3) Bombline - Appendix 1, Fire Support Plan Overlay.
  - (4) Air coordinator - Appendix 1, Fire Support Plan Overlay.
  - (5) Schedule flak suppression fires will be modified where necessary to fire on weapons interfering with air movement.
  - (6) Appendix 2, Schedule of Fires.
  - (7) Appendix 3, Description of Concentrations.
  - (8) Appendix 4, Groups Fired On Call.
- 4. ADMINISTRATION AND LOGISTICS
  - a. Administrative Order 4, 10th Inf Div.
  - b. Ammunition expended on schedule fires is authorized as special allowances.
- 5. COMMAND AND SIGNAL  
Index 1-12, 10th Inf Div SOI in effect.

Acknowledge

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Appendixes: 1--Fire Support Plan Overlay (omitted)  
2--Schedule of Fires (omitted)  
3--Description of Concentrations (omitted)  
4--Groups Fired Qn Call (omitted)

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## 6. Sample Air Movement Plan Annex to an Air-Landed Operation Order

### CLASSIFICATION

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
CY348H

Annex D (Air Movement Plan) to Opn O 12

Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4

1. FLIGHT PLAN
  - a. Approach, return and alternate routes--Appendix 1, Flight Diagram.
  - b. Formation: Serials with "Vees" in column.
  - c. Altitude: 25 - 100 feet above terrain.
  - d. Speed: 100 knots.
2. MOVEMENT CONTROL
  - a. CP, 1st BG, 87th Inf.
  - b. Appendix 2, Air Movement Table.
3. LANDING PLAN
  - a. Appendix 3, Landing Zones.
  - b. Landing Schedule: Appendix 2, Air Movement Table.
  - c. Landing Control: CP, 1st BG, 87th Inf (Pathfinders in Landing Zone).
4. LOADING  
Annex E, Air Loading Plan, to Operation Order 12.

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Appendixes: 1--Flight Diagram  
2--Air Movement Table  
3--Landing Zones (omitted)

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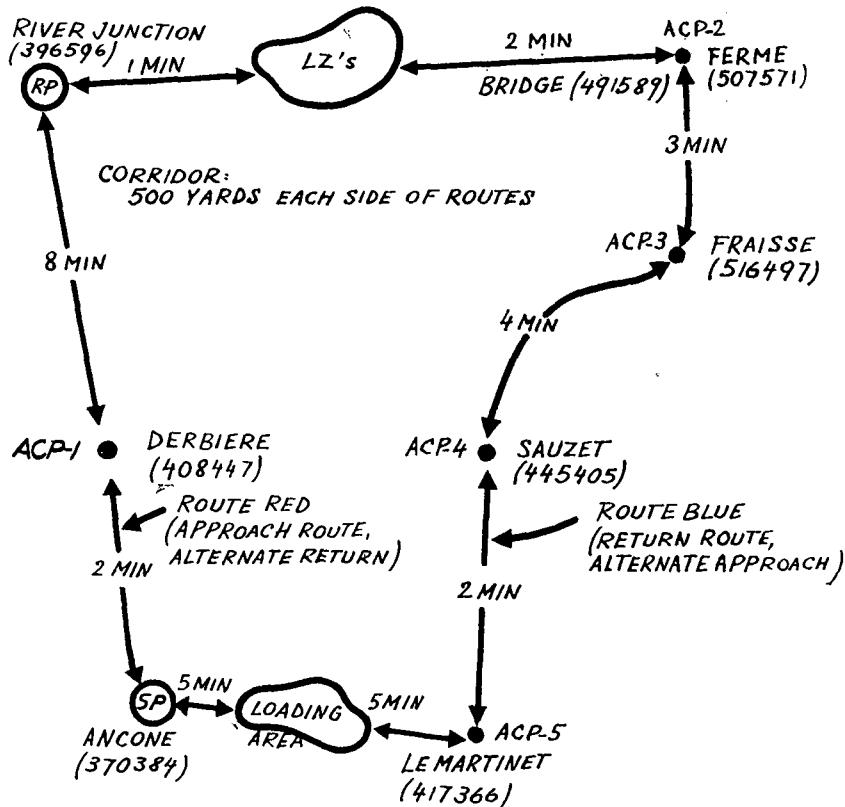
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### CLASSIFICATION

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Copy No 3  
 1st BG, 87th Inf  
 LE PAVILLON (395365)  
 011800 Oct 1960  
 XV531

Appendix 1 (Flight Diagram) to Annex D (Air Movement Plan) to Opn O 12  
 Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
 MONTELIMAR 1&2, 3&4.



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## CLASSIFICATION

Copy No 3HQ 1st Bn, 87th InfPLACE LE PAVILLON (395365)DATE & TIME 011800 Oct 1960

M16P

Appendix 2 (Air Movement Table) to Annex D (Air Movement Plan) to Opn O 12

Reference: Maps, FRANCE, 1:25,000, CREST 1&amp;2, 3&amp;4, 5&amp;6, 7&amp;8, MONTELLIMAR 1&amp;2, 3&amp;4.

SLOT NO.	TRANS AVN UNIT	TRANSPORTED UNIT	NO. HELICOPTER	LOADING AREA	TIME	TIME OF TAKE OFF	SP TIME	RP TIME	LANDING ZONE	LANDING TIME	REMARKS	
											5	6
1	1st Avn Bn (Trans)	Co B Recon Plat	28	B	0539	0544	0551	0559	B	0600		
2	"	Co A Assault Gun Plat	28	A	0544	0549	0556	0604	A	0605		
3	"	Co D	21	D	0549	0554	0601	0609	D	0610		
4	"	Co C (-) Battle Group Reserve	15	C	0554	0559	0606	0614	C	0615		
5	"	Command Group, 1st Bn, 87th Inf 2d Plat, Mort Btry	16	C	0559	0604	0611	0619	E	0620		
6	"	Mort Btry (-)	10	E	0655	0700	0707	0715	E	0716		
7	"	Hq & Hq Co (-)	37	E	0700	0705	0712	0720	E	0721		
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## 7. Sample Air Loading Plan Annex to an Air-Landed Operation Order

### CLASSIFICATION

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
XC302

Annex E (Air Loading Plan) to Opn O 12  
Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4

1. MISSION
  - a. 1st BG, 87th Inf will organize loading area (assembly areas and loading sites) and conduct loading to execute air movement in accordance with Annex D, Air Movement Plan, to Operation Order 12.
  - b. Appendix 1, Loading Area.
2. EXECUTION
  - a. Commanders responsible for assembly areas will designate loading sites (1 per flight unit) within assigned areas.
  - b. Commanders responsible for assembly areas will support loading activities of serials as follows:
    - (1) Co A - Serial 2.
    - (2) Co B - Serial 1.
    - (3) Co C - Serials 4 and 5.
    - (4) Co D - Serial 3.
    - (5) Hq Co - Serials 6 and 7.
  - c. One copy of Air Loading Table will be provided supporting helicopter commanders by 021200 Oct.
  - d. Transport helicopters will arrive at designated loading sites, by flight unit, commencing 30 minutes prior to station time. Helicopters will be marked according to Air Loading Tables and ready for loading 25 minutes prior to station time.
  - e. Helicopter loads will be organized into flight units and ready to load 30 minutes prior to station time.

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Appendix: 1--Loading Area (omitted)

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## 8. Sample Air Loading Table, Air-Landed Operation Order

### CLASSIFICATION

COPY No 3  
 HQ 1st BG, 87th Inf  
 PLACE LE PAVILLON (395365)  
 DATE & TIME 011800 Oct 1960

Annex F (Air Loading Table) to Operation Order 12  
 References: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
 MONTELIMAR 1&2, 3&4.

FLIGHT SERIAL NO. 2 LOADING AREA C STATION TIME 0645 LZ C

FLIGHT UNIT	AVN UNIT	TRANSPORTED UNIT	CHALK NO.	LOADED WITH	LOADING SITE	LANDING SITE	REMARKS
C-1	1st Avn Bn (Trans)	Co C (-) Command Group, 1st BG, 87th Inf	1	10 Men Co C 4 Men Hq Co	C-1	C-1	
			2	12 Men Co C 1-106mm Rifle	C-1	C-1	
Acknowledge							
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## 9. Sample Ground Linkup Plan to an Air-Landed Operation Order

### CLASSIFICATION

Copy No 3  
1st BG, 87th Inf.  
LE PAVILLON (395365)  
011800 Oct 1960  
XU562

Annex G (Ground Linkup Plan) to Opn O 12  
Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELLIMAR 1&2; 3&4

#### 1. SITUATION

- a. Enemy Forces: Annex A, Intelligence, to Operation Order 12.
- b. Friendly Forces:
  - (1) I Corps attacks north 030500 Oct, establishes a bridgehead over the DROME River for further advance to the north.
  - (2) 10th Inf Div (-1st BG, 87th Inf) attacks 030500 Oct, penetrates enemy defenses, follows and supports 2d Armd Div when passed through.
  - (3) 2d Armd Div linkup with 1st BG, 87th Inf airhead vicinity linkup points Blue (43445573), Red (42575639) or alternate linkup points, Green (44005682) and Black (43605712) by 031900 Oct; assumes control 1st BG, 87th Inf and expands bridgehead over the DROME River.
  - (4) Appendix 1, Linkup Overlay.
- c. Attachments and Detachments: Followup echelon 1st BG, 87th Inf reverts to control CO, 1st BG, 87th Inf on order after linkup.

#### 2. MISSION

- 1st BG, 87th Inf, defends airhead vicinity LIVRON SUR DROME and assists 2d Armd Div in ground linkup.

#### 3. EXECUTION

- a. Concept of Operation: 1st BG, 87th Inf continues to defend airhead vicinity LIVRON SUR DROME with 4 rifle companies and assists linkup of 2d Armd Div by fire, limited maneuver; and by establishing linkup points. Upon linkup, control 1st BG, 87th Inf passes to CG, 2d Armd Div and reverts to CG, 10th Inf Div on order.
- b. Co A:
  - (1) Continue defense of airhead line in sector until passed through.
  - (2) Be prepared to provide guides and otherwise assist 2d Armd Div in advance through sector.
- c. Co B:
  - (1) Continue defense of airhead line in sector.
  - (2) Establish linkup points Red and Black.
  - (3) Be prepared to furnish guides and assist 2d Armd Div in advance through sector.
- d. Co C (-):
  - (1) Continue defense of airhead line in sector.
  - (2) Establish linkup points Blue and Green.
  - (3) Be prepared to furnish guides and otherwise assist 2d Armd Div in advance through sector.
- e. Co D:
  - (1) Continue defense of airhead line in sector.
  - (2) Be prepared to furnish guides and assist 2d Armd Div in advance through sector.
- f. Mortar Battery:
  - (1) General support.
  - (2) Annex C, Fire Support Plan, to Operation Order 12.

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(Annex G to Opn O 12 - 1st BG, 87th Inf)

- g. Battle Group Reserve: Lt Johnson, Commanding. Prepare to attack south of airhead line to seize linkup points Red and Blue and assist 2d Armd Div in linkup.
- h. Coordinating Instructions:
  - (1) 1st BG, 87th Inf and 2d Armd Div will exchange no fire line location until such time as no fire lines merge.
  - (2) 2d Armd Div will have priority of roads in airhead after linkup.
- 4. ADMINISTRATION AND LOGISTICS  
Annex J, Administrative Order 4, to Operation Order 12.
- 5. COMMAND AND SIGNAL
  - a. (1) Index 1-12, SOI.
  - (2) When elements of 2d Armd Div come within ground observation, personnel of the 1st BG, 87th Inf linkup points will fire a green smoke streamer every five minutes during daylight or fire a white star cluster every five minutes during darkness, on order.
  - (3) 2d Armd elements will fire a yellow smoke streamer every five minutes during daylight and fire a red star cluster every five minutes at night when within range of weapons in the airhead.
  - (4) Emergency recognition signal during daylight - yellow smoke.
  - (5) Emergency recognition signal during darkness - standard cease fire, signal with flashlights.
  - (6) On order, 1st BG, 87th Inf personnel will display white arm band on left arm and 2d Armd Div personnel will display white arm band on right arm.
  - (7) Liaison officer from 1st BG, 87th Inf, with 2d Armd Div establishes radio contact with 1st BG, 87th Inf when in operating range.
- b. (1) Command posts. Annex B, Opn Overlay, to Opn O 12.  
(2) 2d Armd Div axis of signal communication. Route National PARIS.

Acknowledge

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Appendix: 1--Linkup Overlay

Distribution: A

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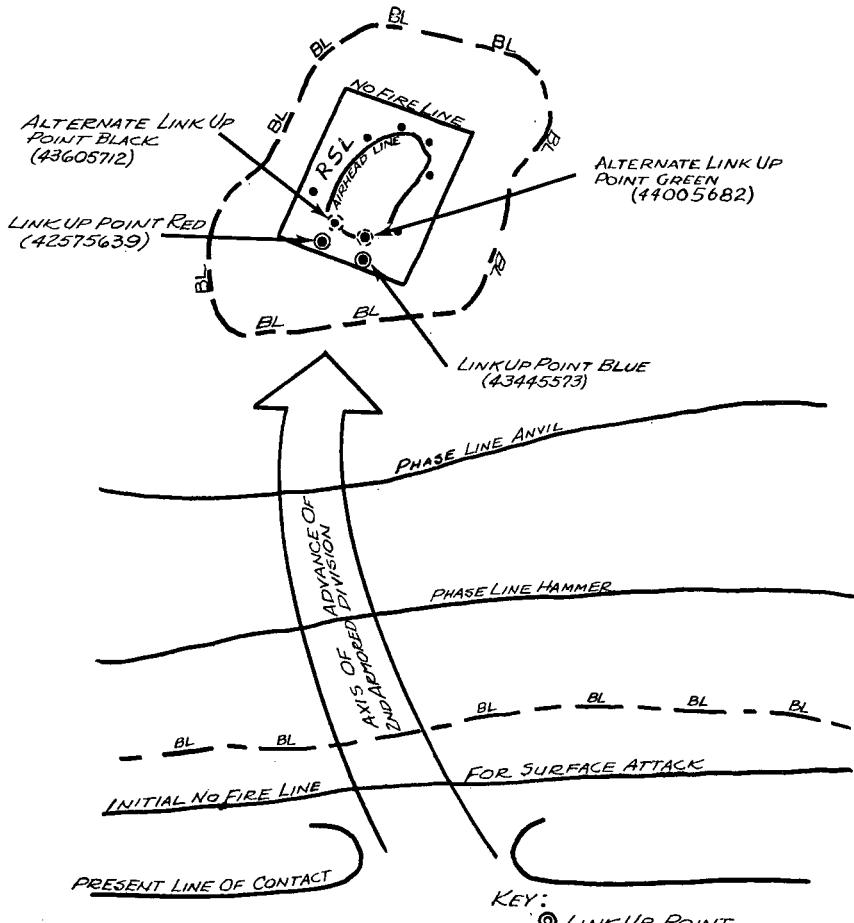
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## CLASSIFICATION

Copy No 3  
 1st BG, 87th Inf  
 LE PAVILLON (395365)  
 011800 Oct 1960  
 XV562

Appendix 1 (Linkup Overlay) to Annex G (Ground Linkup Plan) to Opn O 12  
 Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
 MONTELIMAR 1&2, 3&4.



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## **10. Sample Followup Echelon Annex to an Air-Landed Operation Order**

### **CLASSIFICATION**

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960.  
XV562

Annex H (Followup Echelon) to Opn O 12  
Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4

- 1. MISSION**
  - a. The Followup Echelon, 1st BG, 87th Inf, will support assault echelon by providing:
    - (1) Transportation, supply, housekeeping services, and administration for units of the assault echelon until their departure from loading area.
    - (2) A base for resupply, evacuation and administration for 1st BG, 87th Inf until linkup (anticipated - 041900 Oct).
  - b. Move by motor, on order of 10th Inf Div, to the objective area, rejoin 1st BG, 87th Inf and resume normal mission.
- 2. COORDINATING INSTRUCTIONS**
  - a. Companies will organize their followup echelon.
  - b. Commanders of unit followup echelons will forward to CO, Followup Echelon, 1st BG, 87th Inf, personnel and equipment status reports no later than 031200 Oct. Reports will reflect the number of personnel (by Officers and EM) and the status of major items of equipment.
  - c. Unit followup echelons will support their respective units until departure of the assault echelon, thereafter they will pass to operational control of CO, Followup Echelon, 1st BG, 87th Inf.
  - d. Followup Echelon, 1st BG, 87th Inf, will occupy assembly area designated in Appendix 1 after departure of assault echelon, but no later than 031500 Oct.
- 3. COMMAND AND SIGNAL**
  - a. (1) Annex K, Communication Plan.  
(2) Listening silence in followup echelon until landing of assault echelon. Thereafter, administrative net opens.
  - b. (1) 1st BG, 87th Inf CP opening in airhead and closing in present location to be announced by radio.  
(2) 1st BG, 87th Inf Followup Echelon CP opens 030600 Oct.  
(3) Units report opening of Followup Echelon CP.  
(4) Plat Ldr, Supply and Maintenance Plat, Hq & Hq Co is CO, Followup Echelon, 1st BG, 87th Inf.

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Appendix: 1--Assembly Area, Followup Echelon,  
1st BG, 87th Inf (omitted)

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### **CLASSIFICATION**

## **11. Sample of Battle Group Administrative Order for an Air-Landed Operation**

### **CLASSIFICATION**

(No change from oral orders)

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
XV541

Annex J (Administrative Order 4) to Opn O 12

Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTLIMAR 1&2, 3&4

Time Zone: (Used throughout the order; if unnecessary, omit.)

**1. GENERAL**

- a. No change in SOP.
- b. Appendix 1, Individual and Unit Prescribed Loads.

**2. MATERIAL AND SERVICES**

a. Supply:

- (1) Class I.
  - (a) Three (3) rations, individual combat, to be carried by assault echelon as follows:
    - 1. One (1) each individual.
    - 2. One (1) per individual, unit transport.
    - 3. One (1) per individual, battle group transport.
  - (b) Class I distributing point 434226 opens H / 5 hours.
- (2) Class II and IV. Appendix 1, prescribed loads, assault echelon.
- (3) Class III.
  - (a) Fuel tanks of all vehicles will be 3/4 full.
  - (b) One (1) additional 5-gallon can of gasoline will be carried on each 1/4-ton vehicle.
  - (c) Class III distributing point 434227 opens H / 5 hours.
- (4) Class V.
  - (a) Appendix 1, Unit Prescribed Loads.
  - (b) Ammunition Distributing Point 434227 opens H / 5 hours.
- (5) Water.
  - (a) 5-gallon cans available, Class I distributing point.
  - (b) Water point location to be announced.
- (6) Special. On call followup supplies will be available at battle group supply and service area at H / 5 hours.
- (7) Salvage. Collecting points 434226.
- (8) Captured material.
  - (a) SOP.
  - (b) Enemy transportation under control of battle group S4.

b. Transportation:

- (1) Blackout restrictions, SOP.
- (2) Battle group transportation in the airhead will be pooled under battle group control by S4 by H / 5 hours.

c. Services: Vehicle maintenance and repair teams available on call from battle group to perform forward area maintenance.

**3. MEDICAL EVACUATION AND HOSPITALIZATION**

Evacuation.

- a. Location of Battle Group Aid Station Jean Peat 456584.
- b. One (1) evacuation helicopter from 1st Aviation Bn (Tac Trans) will be on call to battle group surgeon at H / 30 minutes.
- c. Other units, helicopter evacuation on request to battle group surgeon.

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(Annex J to Opn O 12 - 1st BG, 87th Inf)

4. PERSONNEL
  - a. Civilian labor details formed from native populace will be under control of battle group S4. Request for details will be forwarded through command channels.
  - b. Prisoners of war will be evacuated by most expeditious means to battle group inclosure, 438287.
5. CIVIL AFFAIRS/MILITARY GOVERNMENT
  - a. Military government teams available at battle group to assist units in handling of civil affairs problems.
  - b. Curfew for all indigenous personnel 2030 hours daily.
6. MISCELLANEOUS
  - a. Units select, prepare and report location of helicopter landing sites for delivery of supplies and for evacuation of dead, salvage, captured enemy material and prisoners of war.
  - b. Distributing points, 434226, opens H + 5 hours.
  - c. Unit distribution in effect upon arrival in airhead.

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Appendix: 1--Individual and Unit Prescribed Loads

Distribution: A

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G4

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Copy No 3  
 1st BG, 87th Inf  
 LE PAVILLON (395365)  
 011800 Oct 1960  
 XV542

Appendix 1 (Individual and Unit Prescribed Loads) to Annex J (Administrative Order 4) to Opn O 12

Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
 MONTELIMAR 1&2, 3&4

1. PRESCRIBED LOAD FOR INDIVIDUALS IN ASSAULT ECHELON

- a. Following items of clothing and equipment are prescribed for individuals in assault echelons:
- Individual weapon
  - Individual basic load ammunition
  - Helmet, steel M1 complete
  - Bayonet, w/scabbard or knife M741
  - Belt, cartridge or pistol
  - Canteen, w/cup and cover
  - Pouch and packet, first aid
  - Pack field combat
  - Intrenching tool, combination w/carrier
  - Spoon, M1926
  - Toilet articles
  - One (1) ration, individual combat
  - Hand grenades, two (2)
  - Poncho
  - Socks, wool, cushion sole, OD, two (2) pairs

2. PRESCRIBED LOAD OF CLASS V SUPPLIES FOR UNITS IN ASSAULT ECHELON

- a. Following ammunition to be carried by assault companies:

- Riflemen - 2 bandoleers and 2 fragmentation grenades
- Automatic rifle teams - 16 magazines
- 3.5-inch rocket launcher teams - 5 rounds
- 81mm mortar squads - 15 rounds
- Heavy machinegun squads - 8 chests
- Light machinegun squads - 4 chests
- 106mm rifle - 6 rounds per weapon
- Heavy mortar squad - 84 rounds

b. Prearranged ammunition loads on call by type:

Weapon	Amount (rounds)	Weight
Type A Machinegun, cal. .30	2000	172
Automatic rifle, cal. .30	1900	176
Rifle, M1, cal. .30	3840	400
Machinegun, cal. .50	800	300
Carbine, cal. .30	4320	196
Grenades, fragmentation	50 (each)	106
	Total	1350
		pounds
Type B Mortar, 81mm	100	1250
Mortar, 4.2-inch	100	3500
	Total	4750
		pounds
Type C Rifle, 106mm	30	1650
Rocket launcher, 3.5-inch	15	265
	Total	1915
		pounds

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(Appendix 1 to Annex J to Opn O 12 - 1st BG, 87th Inf)

Weapon	<u>Amount (rounds)</u>	Weight
Type D Mines, AT, M15	50	1500
Type E Mines, AP, M16	100	780
Mines, AP, M14	500	30
Trip Flare, M49	100	140
	Total	950 pounds

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Distribution: A

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## 12. Sample Communication Annex to an Air-Landed Operation Order

### CLASSIFICATION

Copy No 3  
1st BG, 87th Inf  
LE PAVILLON (395365)  
011800 Oct 1960  
JM701

Annex K (Communication Plan) to Opn O 12

Reference: Maps, FRANCE, 1:25,000, CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4

#### 1. SITUATION

- a. Enemy Forces:
  - (1) Enemy has available extensive radio jamming and intercept facilities.
  - (2) Little FM radio equipment is being used by the enemy.
- b. Friendly Forces: 10th Sig Bn will support loading with communication personnel and equipment.
- c. Attachments and Detachments: 5th Area Support Plat, Combat Ops Co, 10th Sig Bn attached, effective 011800 Oct.

#### 2. MISSION

Communication units will provide communication for 1st BG, 87th Inf in accordance with 10th Inf Div SSI and SOI and this annex as appropriate.

#### 3. EXECUTION

- a. Concept of Operation: 1st BG, 87th Inf will install and operate communication to units in the loading area. Radio communication between 1st BG, 87th Inf and aviation units will be furnished and operated by 1st Avn Bn (Trans). Pathfinder units will control air movement in the objective area. Tactical communication of assault echelon in objective area SOP.
- b. 5th Area Support Plat, Forward Comm Co, 10th Sig Bn:
  - (1) Provide communication from loading area to 10th Inf Div.
  - (2) Attached to followup echelon for move to rejoin assault echelon.
- c. Coordinating Instructions:
  - (1) Wire communication:
    - (a) Loading Area: Appendix 1 (Loading Area Wire Communication Plan - Overlay).
    - (b) Objective Area: SOP, supplemented by lines to Reconnaissance and Security line.
  - (2) Radio Communication:
    - (a) Loading area: Listening silence, except for communication as may be necessary between 1st BG, 87th Inf and aircraft while in flight to and return from objective area.
    - (b) Movement to objective area:
      - 1. Listening silence except for:
        - a. Pathfinder Communication from objective area.
        - B. Army transport aircraft Radio Nets as necessary.
      - 2. Assault force will not use Army transport aircraft radios during movement except for emergencies.
    - (c) Objective Area:
      - 1. SOP tactical nets within 1st BG, 87th Inf.
      - 2. Special command net with 10th Inf Div until linkup.
      - 3. Pathfinder Nets will not be used by assault forces except in emergency.
      - 4. Integrate Reconnaissance and Security force, Pathfinder units and 1st BG, 87th Inf Reserve into 1st BG, 87th Inf command net.

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(Annex K to Opn O 12 - 1st BG, 87th Inf)

5. Linkup force command net monitored until contact is made.
  - (d) Appendix 2, Radio Nets Diagram.
  - (e) Authenticate all message transmission.
- (3) Messenger Communication:
  - (a) Loading Area:
    1. Special dismounted, mounted, and helicopter message service available at 1st BG, 87th Inf Headquarters.
    2. All units have available special dismounted and mounted messengers until assembly areas are cleared.
  - (b) Objective Area:
    1. SOF, except to division.
    2. Air messenger service to division.
4. ADMINISTRATION AND LOGISTICS
  - a. Communication personnel and equipment of all units will be decentralized within air loading tables.
  - b. One repairman with necessary equipment and spare parts will be included in assault echelon of battle group headquarters and each rifle company.
  - c. Radio operators will carry one extra set of batteries for each set to be employed.
5. COMMAND AND SIGNAL
  - a. Index 1 - 12, 10th Inf Div SOI in effect.
  - b. Battle Group Signal Officer will be with the assault echelon. Battle group communication chief will coordinate communication in the loading area and join the followup echelon.

Acknowledge

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Appendixes: 1--Loading Area Wire Communication Plan--Overlay  
2--Radio Nets Diagram  
3--Communication Operation Instructions

Distribution: A

OFFICIAL:

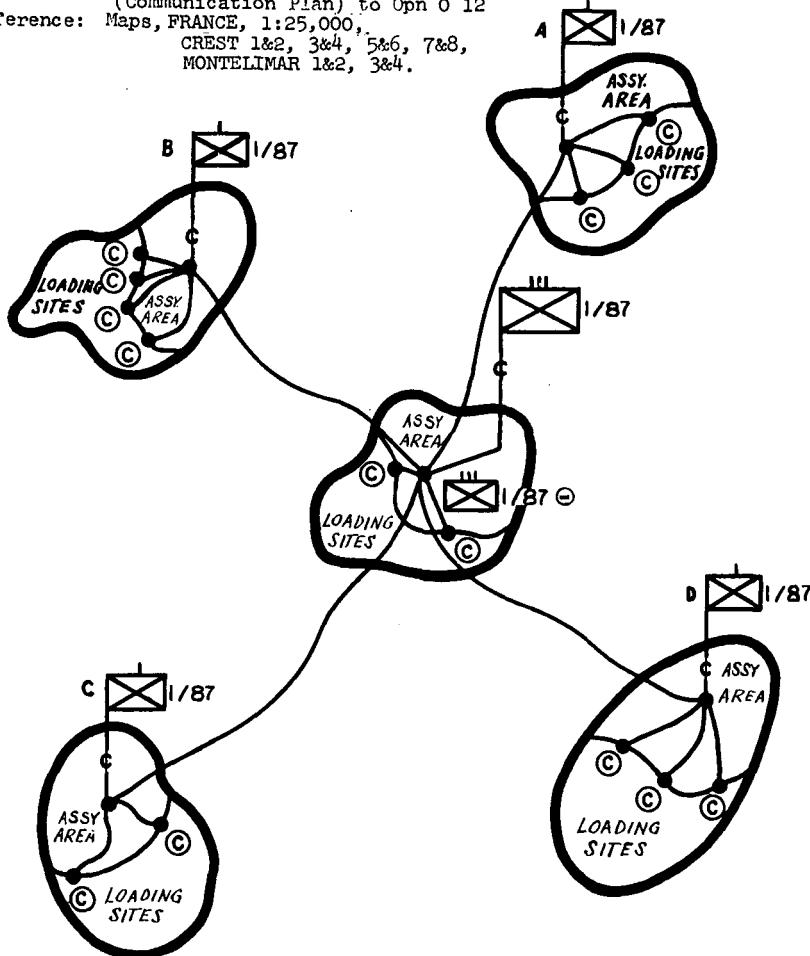
*SELLERA*  
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CLASSIFICATION

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JM701

Appendix 1 (Loading Area Wire Communication Plan Overlay) to Annex K  
(Communication Plan) to Opn O 12  
Reference: Maps, FRANCE, 1:25,000,  
CREST 1&2, 3&4, 5&6, 7&8,  
MONTELIMAR 1&2, 3&4.



KEY:

● EE - 8 TP

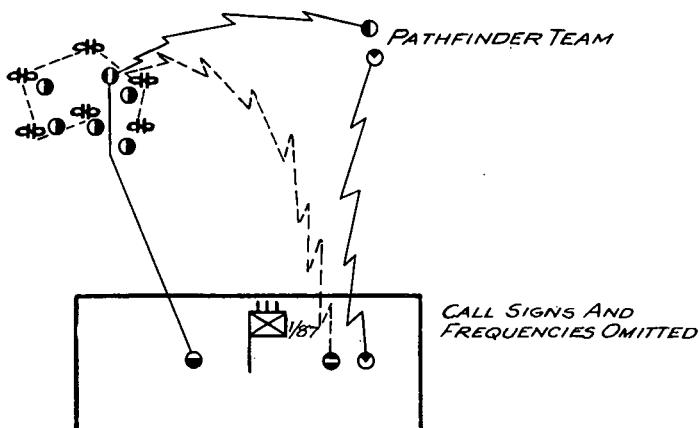
© LOADING CONTROL POINT

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Appendix 2 (Radio Nets Diagram) to Annex K (Communication Plan) to  
 Opn O 12



## LEGEND:

- - AN/VRC-( ) AVN UNIT COMMAND SET
- - AN/ARC- - /IND AIRCRAFT SET
- - AN/ARC- -(PRC) IND AIRCRAFT SET
- - AN/VRQ- - /INF UNIT FM(MED POWER)SET
- AN/GRC- - /INF UNIT AM SET
- AN/PRC- LOWPOWER AUX MAN PORTABLE /INF SET

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Appendix 3 (Communication Operation Instructions) to Annex K (Communication Plan) to Opn O 12

For this operation information in Index 1-12, SOP, 10th Inf Div will be supplemented as follows:

1. Telephone Listings:  
Pathfinder Units - DODGE  
R&S Force - DRAG
2. Radio Call Signs: (For use in 1st BG, 87th Inf Nets)  
Pathfinder (FM) - CHANCELOR  
R&S Force (FM) - ELEPHANT  
(AM) - G7F3  
1st Avn Bn (Tac Trans) (FM) - CANARY
3. Panel Signals:  
Land here -  
Emergency aeromedical evacuation required.

(RED  
PANELS)



CLASSIFICATION

## APPENDIX IV

### AIRCRAFT LOADING AND MOVEMENT FORMS

---

#### **1. General**

The forms described in this appendix facilitate and simplify loading and movement planning by an air-landed force. They are not standard and may be modified or eliminated as necessary to conform to the degree of detail required in the planning for a given mission. When enough planning time is available, a large force may use all the forms; a small force may use none. Whatever size force is used, only those forms necessary for efficient conduct of the operation should be used.

#### **2. Planning Worksheet**

*a. Purpose.* The planning worksheet (fig. 37) helps to compute aircraft requirements when using the space method (app. VIII) and to make subsequent movement planning easier. The completed form reflects the number of personnel, the amount of additional assault supplies (weight and spaces) and major items of equipment (number by type and total spaces) of the air-transported force. When completed, aircraft requirements can be determined rapidly and accurately and the force can be easily organized into serials. The planning worksheet is not published as a part of combat orders, but the information in it is reflected in operation and administrative orders. This worksheet is initially compiled at company level and consolidated at battle group level. To speed up planning, it is desirable to maintain a correct worksheet at all times.

*b. Detailed Explanation.*

- (1) *Heading.* This information is completed by the headquarters preparing the form and is necessary only for identification.
- (2) *Unit.* The subordinate participating units are listed.
- (3) *Personnel.* The number of personnel to be transported, by unit, is indicated.
- (4) *Additional supplies.* The assault supplies to be transported in bulk (as opposed to the unit prescribed load carried by the individual) is indicated by weight in column 3 and by spaces in column 4.

PLANNING WORKSHEET

Operation Buster

HQ 1st Bn. 87th Inf.  
Date 1 May

(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
UNIT	PERSONNEL	Additional Supplies	Major Items of Equipment					REMARKS
		Weight Space (lbs)	Item	Weight (lbs)	Space (sq)	No. of Items	Total Space	
Co A	235	1500	6.5  1/4 T Truck 1/4 T Trailer 106mm. Rifle	2690 1065 483	11.5 4.5 2.5	3 1 2	34.5 5	Includes Arty FO  285.5
Total 1st Bn, 87th Inf	1305	30.5					780.5	2096
								Spaces per Aircraft - 25 Spaces for RG - 2096 Aircraft Required - 2096 / 25 = 83.8 or 84

**Figure 37.** Planning worksheet (sample extract).

- (5) *Major items of equipment.* The major items of equipment to be transported (predetermined to be within the lift capability of the aircraft employed) are listed with information indicated.

### **3. Flight Manifest**

- a. Purpose.* The flight manifest (fig. 38) normally is prepared at company level. Its purpose is twofold: to account for personnel and to provide a company loading and movement plan. The manifest form may be modified to conform to unit requirements.

### *b. Detailed Explanation.*

- (1) *Heading.* Information needed to complete the heading,

FLIGHT MANIFEST

OPERATION \_\_\_\_\_ DATE \_\_\_\_\_  
 Flight Serial \_\_\_\_\_ Loading Site \_\_\_\_\_  
 Flight Unit \_\_\_\_\_ Landing Site \_\_\_\_\_

PERSONNEL

GRADE	NAME	SN	ORG	REMARKS
Lt Col	J.H. Buck	09999	Hq & Hq Co, 1st Bn, 87th Inf	Troop Commander
Cpl	B.P. Carney	097433		Driver
Pfc	C.M. Jones	984732		Rad Operator
Pvt	H.R. Colson	237489		

MAJOR ITEMS OF EQUIPMENT

QUANTITY	ITEM
1	1/4-ton truck
1	1/4-ton trailer loaded with comm equipment

-- Troop Commander

Figure 38. Flight manifest.

except the date, is obtained from the air loading table. The date indicates the day the manifest is prepared.

- (2) *Personnel.* The men to be transported are listed by grade, name, serial number, and organization. Appropriate remarks, such as the designation of the commander of troops, are also noted.
- (3) *Major items of equipment.* Major items of equipment to be transported by the aircraft are listed.
- (4) *Authentication.* The troop commander signs the manifest.

#### 4. Movement and Loading Tables

Appendix III contains sample air movement and loading forms.

## **APPENDIX V**

### **PATHFINDERS**

---

#### **1. General**

*a. Missions.* Pathfinders are especially selected and trained Army personnel, whose primary mission is to aid in the navigation and control of Army aircraft. Pathfinders are organized, trained, and equipped to—

- (1) Establish and operate electronic and visual navigation aids to assist aircraft in locating the designated drop or landing zone.
- (2) Furnish ground-to-air voice radio communication to aircraft for the purpose of providing information, guidance, and control.
- (3) Reconnoiter for and recommend suitable drop or landing zones.
- (4) Assist in the assembly of air-landed forces.
- (5) Reconnoiter and make a radiological survey of areas subjected to nuclear attack and report conditions which would influence military operations.

*b. Employment of Pathfinders.*

- (1) Pathfinders normally are employed in teams, reinforced as required for a particular mission.
- (2) In air-landed operations, teams either precede or accompany the assault echelon.
  - (a) When they precede the assault echelon, 10 to 30 minutes are required to establish navigation and assembly aids and pathfinder communication nets.
  - (b) When they accompany air-landed units, they move as a part of the first element of the assault echelon and assist in the control of subsequent deliveries of personnel and equipment.
- (3) In aerial supply operations, pathfinders are employed with advanced, isolated, or inaccessible units to insure and facilitate accurate delivery.
- (4) Pathfinder personnel may be employed within friendly lines to install navigational aids for aircraft operating

- in unfamiliar terrain. They also may be used to assist in air traffic control.
- (5) Communication equipment organic to the team enables pathfinders to provide coordinated control in landing and drop zones over widely dispersed areas.
  - (6) Pathfinders are trained and equipped to determine the extent of residual radiation and assess battle damage in areas subjected to nuclear explosions. They may be employed to determine the reaction of the enemy forces to this type weapon.
  - (7) It is desirable to use pathfinders in all air-landed operations whenever it is consistent with security aspects, especially at night and during periods of reduced visibility.

## **2. Organization and Equipment**

*a. General.* A team is the basic pathfinder tactical unit and consists of two officers and ten enlisted men. One or more pathfinder teams may be employed for the same operation. One team may be divided to form the nucleus for two teams that are completed by attaching personnel from the assault unit.

*b. Equipment.* Equipment for pathfinders applicable to air-landed operations consist of—

- (1) Navigation devices to guide aircraft to the general landing area, including visual and electronic beacons.
- (2) Visual aids to assist in the landing of aircraft and assembly of troops. They include panels, lights, smoke grenades, and pyrotechnic signals.
- (3) Communication equipment, including portable radio sets to provide ground-to-air and ground-to-ground communication.

## **3. Transportation**

*a.* The pathfinder team may be delivered to an area of operations by parachute, rotary- or fixed-wing aircraft, motor vehicle, or amphibious landing, or it may infiltrate as a ground patrol.

*b.* Delivery by helicopter offers the advantage of placing each party of the team in its assigned area on the landing zone.

*c.* In delivery by parachute, the entire team normally is landed in one area from which the several parties must move to their assigned locations.

*d.* In short-range operations it may be more practical for the team to move as a ground patrol. Pathfinder equipment is de-

signed for lightness and portability, and can be hand carried for considerable distances.

#### **4. Communication**

The pathfinder team has voice communication radios for establishing ground-to-ground or ground-to-air communication nets. The team uses smoke, panels, lights, pyrotechnics, and flags within the landing zone for visual communication. (For standard visual signaling procedures, see ACP's 129, 136, and 168(A)).

#### **5. Conduct of Operations**

*a. General.* A pathfinder team assists in the navigation and control of Army aircraft in three basic types of operations: rotary-wing, fixed-wing, and aerial resupply. Usually, a landing zone consists of either helicopter landing sites or a fixed-wing landing strip, but it may have a combination of both. A resupply drop zone can be included in the landing zone. Normally, the 12-man pathfinder team is capable of handling one landing zone with either of the following installations: four helicopter landing sites; one fixed-wing landing strip; one or two drop zones. These capabilities must be reduced if the landing zone is to have a combination of landing sites, fixed-wing landing strip, and/or drop zones. Normally, the pathfinder team is reinforced by the supported unit with communication and security personnel. Such personnel should be attached to, and under the command of the pathfinder team leader.

*b. For each of the three basic operations or combination of operations, the pathfinder team usually is organized into three types of parties: a release point party, a landing zone control center party, and a landing site, landing strip, or drop zone party.*

- (1) *Release point party.* This party is responsible for marking with visual and electronic navigational aids a pre-designated point on the approach flight route from which aircraft flights proceed directly to their assigned landing site, landing strip, or drop zone within the landing zone. During daylight operations, a prominent terrain feature may be picked as a release point, in which case a release point party may not be necessary.
- (2) *Landing zone control center party.* This party can be considered the nerve center of the landing zone. The pathfinder team leader normally is at the control center, which usually is located on prominent terrain in the center of the landing zone. The control center provides visual and electronic navigational assistance to incoming

aircraft. Both ground-to-air and ground-to-ground radio communication (including the supported unit headquarters) nets are operated at the control center. The landing zone control center party monitors all air-landed operations within the landing zone and, as necessary, controls aircraft landings and departures.

- (3) *Landing site, landing strip, and drop zone parties.* These parties, one for each landing site, landing strip, and drop zone within the landing zone, provide the last minute visual guidance and landing/drop information to individual aircraft. They supervise the parking of aircraft and assist in the assembly of the transported troops. Usually, any reinforcing personnel from the supported unit are attached to these parties. The attached personnel provide assistance in the preparation of the landing site or strip and the assembly of the transported personnel, and provide security for the site or strip.

## APPENDIX VI

### SELECTION, PREPARATION, AND OPERATION OF LANDING AND DROP ZONES, AND LANDING SITES AND STRIPS

---

#### 1. Day Landing Zones

(figs. 39 and 40)

- a. In selecting day landing zones, a major technical consideration involves finding enough level, firm terrain for the landing sites and strips needed to handle the volume of air traffic to each particular area, including taxiways and parking areas where required. The landing zone must be prepared by removing any obstacles that will interfere with air navigation above a minimum altitude and that normally would be invisible to the pilot. If such obstacles are too difficult to remove, they are suitably marked.
- b. Landing zones are marked with panels, smoke, electronic navigation aids, or a combination of these means. A prearranged code identification letter made from panels is used to identify the landing zone.
- c. Flight serial commanders and flight unit leaders establish communication with the control center at a predesignated point and receive information on the weather, enemy, and terrain in the area. When the information indicates that an alternate plan must be used, the control center advises flight unit leaders of the heading and distance to alternate landing sites or strips.
- d. Desirably, flight unit leaders fly within visual contact range of the release point before taking up their heading to their landing sites (strips).

#### 2. Day Landing Sites, Landing Strips, and Drop Zones

a. *Selection.* The following factors are considered when selecting day landing sites, landing strips, and drop zones:

- (1) The ground must have less than a  $15^{\circ}$  slope from the horizontal if the helicopter is required to touch down to unload and less than a  $10^{\circ}$  slope for landing fixed-wing aircraft.

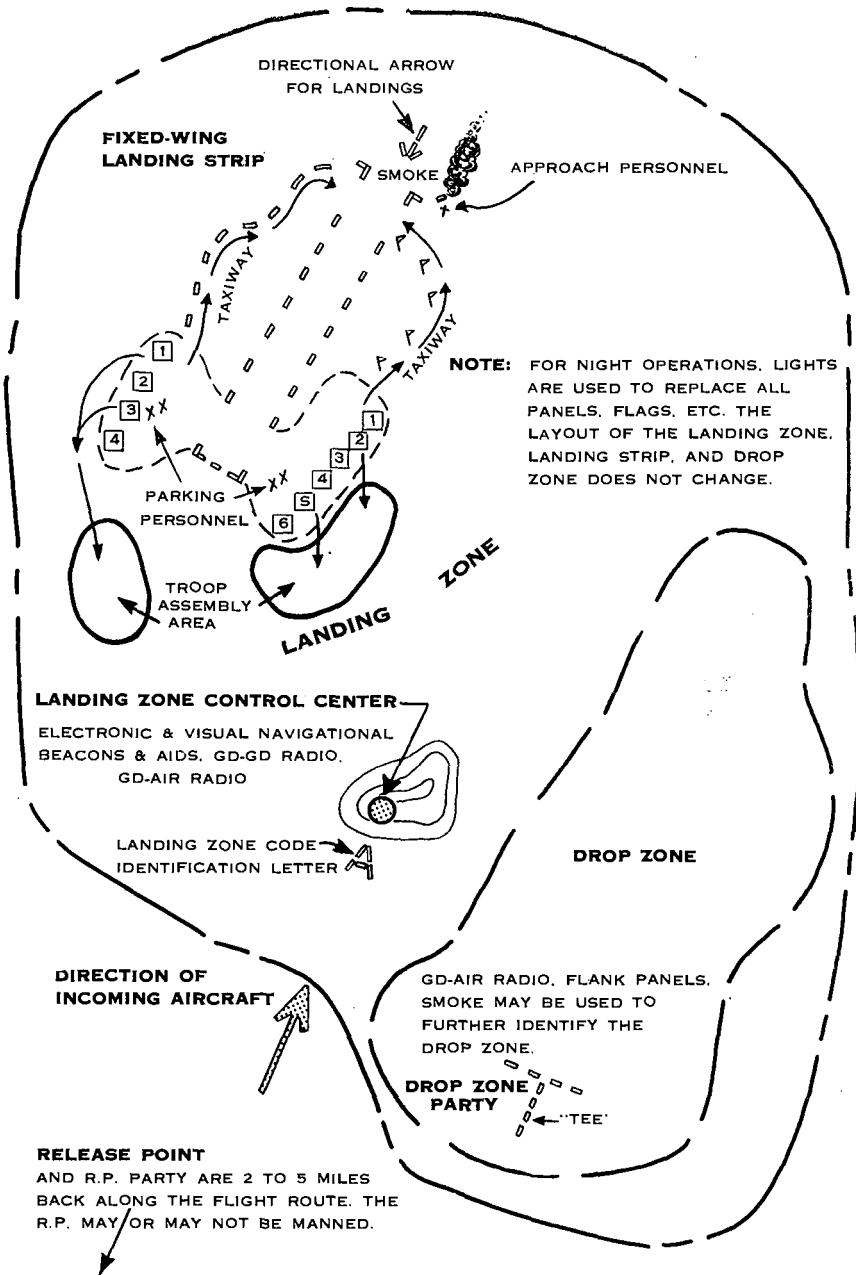


Figure 39. Schematic diagram of a landing zone with a landing strip and a drop zone.

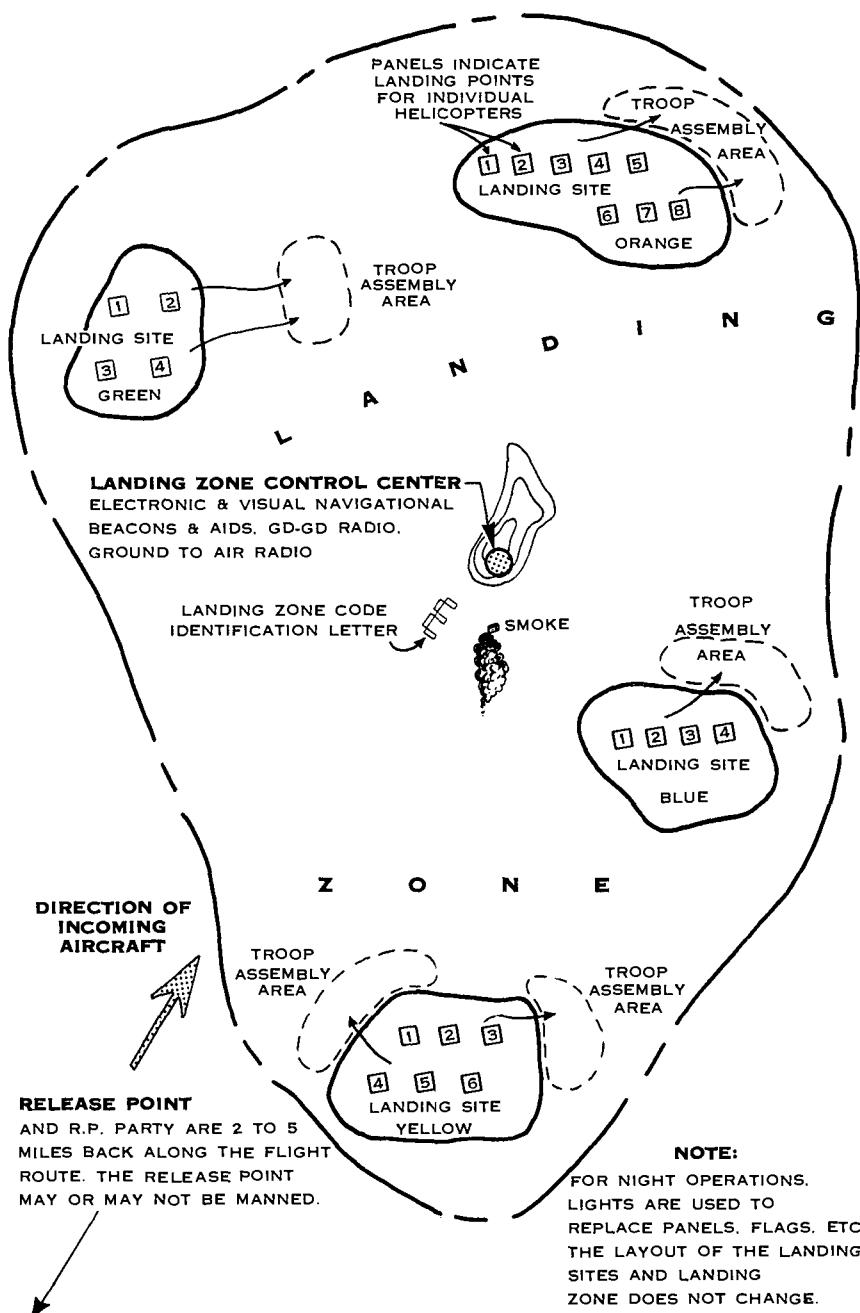


Figure 40. Schematic diagram of a landing zone with four helicopter landing sites.

- (2) The standing should be firm enough to keep the aircraft from sinking and becoming mired on landing, taxiing, or parking.
- (3) The area must be clear of obstructions such as large rocks and holes that prohibit taxiing or unloading, and debris that may be sucked up into the rotor blades.
- (4) Depending on the density altitude and the aircraft load, approaches to and exits from the landing sites (strips) should be free of obstructions to the maximum extent possible.
- (5) Desirably, each landing site (strip) is easy to identify from the air. Landing sites should be big enough to accommodate the helicopters of a single flight in simultaneous landings or takeoffs.
- (6) Care is taken to select sites and strips that are not in a portion of the terrain where wind effects will complicate stability and flight control. For example, in mountains, landing sites (strips) are not selected at the head of a valley where a downdraft is created by winds coming off the top of a hill.
- (7) Considerations for selecting drop zones are generally the same as those for selecting landing sites. There is less emphasis on obstacles, slope, and soil trafficability, since the aircraft do not land.

*b. Preparation.*

- (1) Only nominal preparation of helicopter landing sites is required for daylight operations. When personnel and facilities are available and the tactical situation permits, landing sites are reconnoitered to locate and mark obstructions or to remove them.
- (2) For operations involving fixed-wing aircraft, panels are used to outline the landing strip and form the wind indicator arrow. Smoke may be employed to identify the landing strip and indicate wind direction and velocity to the pilot. Obstacles on the ground are marked if they are likely to endanger the aircraft while taxiing.

*c. Operation.* Flight units operating in a landing site or strip area, land, unload, take off, and move without further orders to the return routes unless otherwise directed by the landing zone control center. The use of emergency "Do Not Land" signals must be prearranged. (See ACP's 136 and 168(A).) In drop zone operations, the aircraft releases the resupply bundles as, flying up the stem of the tee, it passes over the junction of the stem and crossbar. When additional personnel are available at

the landing site or strip to assist the pathfinders, the following procedures may be used:

(1) *Rotary-wing landing site.*

- (a) A ground assistant can indicate a landing point for the flight leader by arm and hand signals. The flight leader occupies that particular location, and the rest of the flight lands immediately behind him.
- (b) A ground assistant can mark an individual landing point for each helicopter with a panel of a predesignated color.
- (c) Ground assistants may take charge of each helicopter individually, guiding it to its landing location at the site with panels, arm and hand signals, or flags.

(2) *Fixed-wing aircraft landing strip.*

- (a) Parking party personnel use arm and hand signals to control aircraft parking. They transmit instructions from the control center to pilots when necessary, and assist in unloading the aircraft.
- (b) The pathfinder at the approach end of the runway clears aircraft for takeoff or delays the takeoff according to the instructions received from the control center.

### **3. Night Landing Zones**

a. Night landing zones are identical to those for day landings except that more emphasis is placed on selecting zones with a minimum of obstacles and on providing more room. A formation of aircraft cannot maneuver as easily at night as during daylight and control of the aircraft is more difficult.

b. Night landing zones are laid out like day landing zones except that light sources must be used as visual aids. A color code differentiates between the different landing zones in an objective area.

### **4. Night Landing Sites, Landing Strips, and Drop Zones**

a. *Selection.* The considerations applying to the selection of day landing sites, landing strips, and drop zones are equally applicable for night operations. Increased emphasis is placed on avoiding obstacles and selecting glide paths free of obstacles. Landing sites must be easily identifiable and provide added maneuver room for helicopter formations in flight and during landing and takeoff.

b. *Preparation.* Night landing sites and strips are prepared by indicating the exact landing or parking points for each air-

craft with a visible light source. Increased emphasis is placed on marking or clearing obstacles to navigation or landing.

c. Operation. The operation of night landing sites, landing strips, or drop zones is essentially the same as for day operations, but more control is exercised over the aircraft formations. Flight unit leaders establish communication with the control center party at a prearranged point or time while approaching the objective area. Flashlights or other lights may be used to transmit signals. The use of emergency "Do Not Land" signals must be pre-arranged. (See ACP 168(A).)

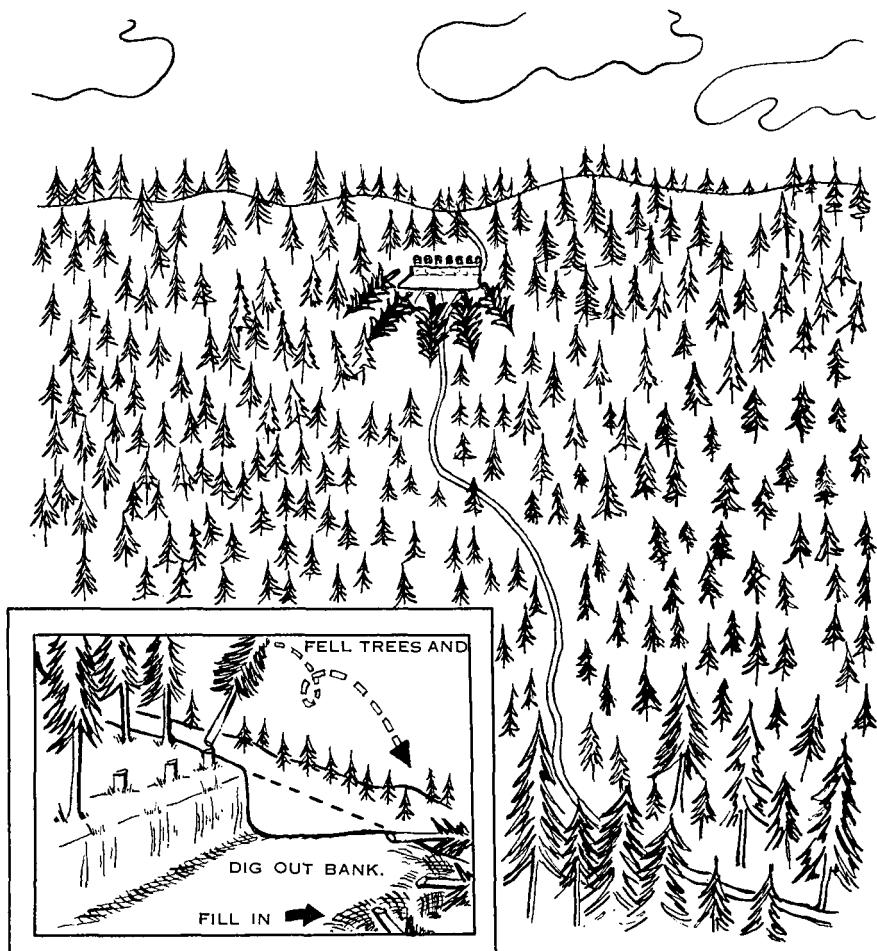


Figure 41. Mountain landing site.

## **5. Special Landing Sites and Strips**

- a.* In difficult terrain, landing sites and strips may be unusually hard to prepare. Much work will have to be done to remove obstacles and level the ground. Extra ground personnel may have to be provided for this purpose.
- b.* In swampy areas it may be necessary to build mats of brush, small trees, or other material upon which helicopters may land and unload.
- c.* In mountainous terrain, helicopter landing sites are prepared by cutting into a hill or ridge and building up a level area. This leveled area must allow enough room for the helicopters to land and provide a clearance between the rotor blades and the cutout uphill slope (fig. 41).
- d.* In desert areas, efforts must be made to reduce the amount of dust created by landings and takeoffs, particularly at helicopter landing sites. Not only does dust interfere with a pilot's vision but it creates special aircraft maintenance problems. Because water is at a premium in desert operations, oil or kerosene may be sprayed on the ground to minimize dust.
- e.* In arctic areas, powdered snow creates the same general problems created by dust in the desert. When time and the situation permit, the powdered snow should be scraped away until a firm surface is reached, or the snow should be firmly packed.
- f.* Because of the warm (thin) air in tropical areas, loaded helicopters are not able to land or take off vertically—they require a short ground roll. In jungle operations, considerable time and effort may be required to provide adequate landing and takeoff space. If landing sites cannot be cleared, personnel can unload from a hovering helicopter by climbing down rope ladders.

## APPENDIX VII

### ASSEMBLY TECHNIQUES

#### 1. General

This appendix outlines the techniques and aids suitable for conducting an assembly in air-landed operations when the assembly of units is deemed necessary.

#### 2. Assembly Techniques and Aids

- a. Assembly plans are based on the use of one of the following techniques:

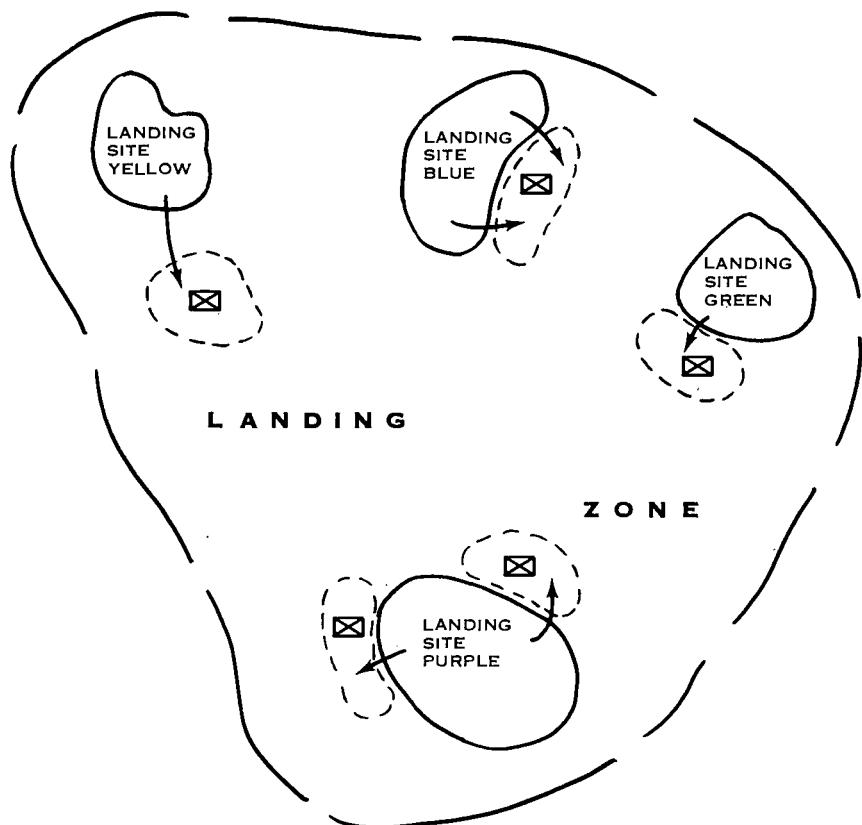


Figure 42. Independent assembly of subordinate units (schematic diagram).

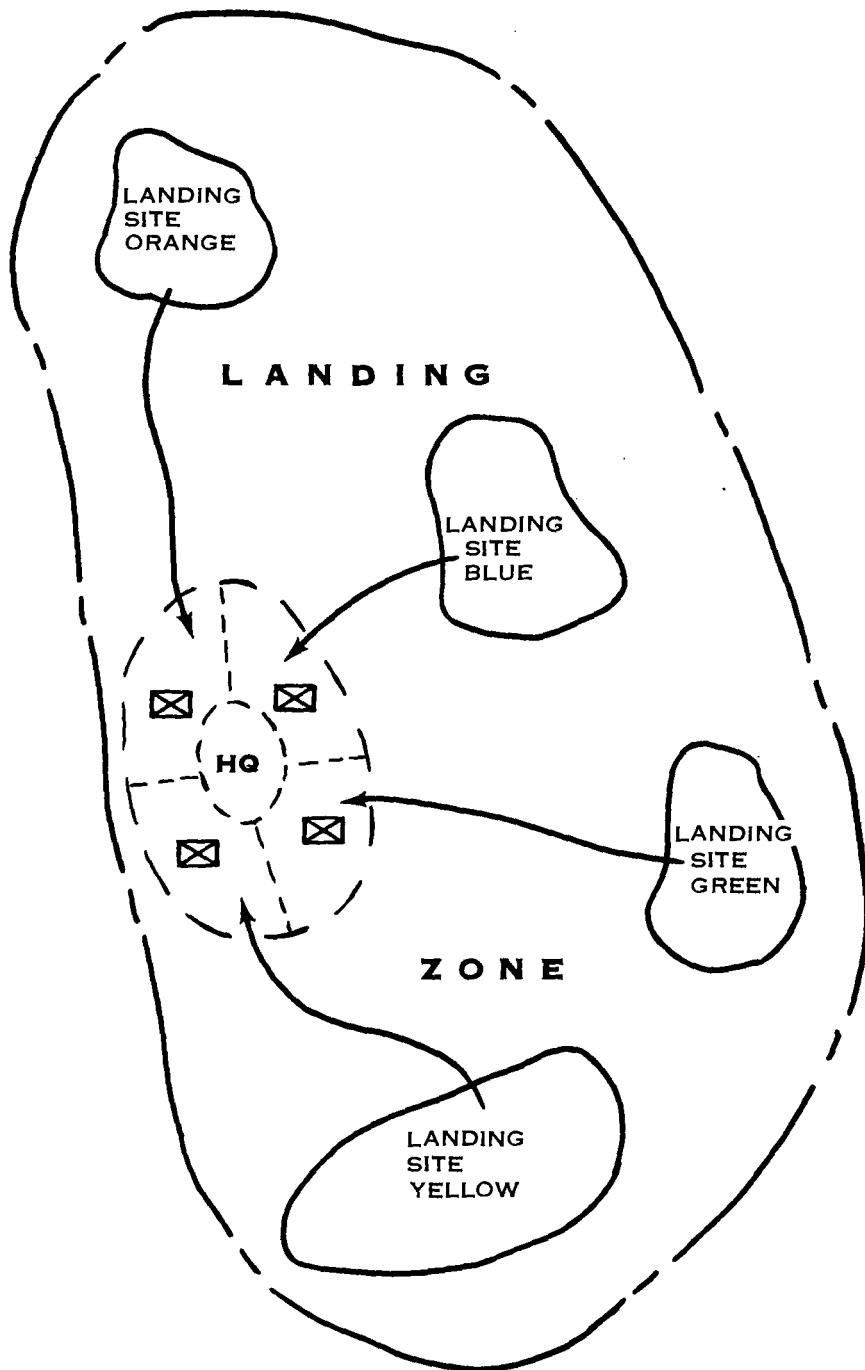


Figure 43. Assembly in conjunction with other subordinate units  
(schematic diagram).

- (1) Assembly by a subordinate unit independent of other subordinate units (fig. 42).
- (2) Assembly by subordinate units in conjunction with other units (fig. 43).

b. A thorough briefing on the assembly plan is conducted by all units. As time and facilities permit, the briefing should be augmented by the use of maps, charts, aerial photographs, and sand tables.

c. Assembly aids used at landing sites and strips are of three classifications: visual, audible, and electronic.

- (1) *Visual assembly aids.* Panels, flags, smoke, and pyrotechnics are used in a variety of colors. The arrangement and color of a given aid on the periphery of the landing zone indicates the location of subordinate unit assembly areas. Additional visual aids may be used in the form of distinctive markings on the helmets of the troops of each subordinate unit or a bright strip of cloth (a different color for each unit) attached at a designated place on the men.
- (2) *Audible assembly aids.* Audible aids include whistles, crickets, cow bells, bugles, and other devices that make a distinctive sound that can be heard about the sound of battle. Subordinate units can be briefed to assemble at the source of a specific sound. Consideration must be given, however, to the fact that aircraft noise may overpower these audible aids.
- (3) *Electronic assembly aids.* Electronic aids include radio and radio homing devices. The conventional ground radio can assist in guiding troops to a given location when properly modified with the standard directional homing antenna.

d. Generally, the same considerations apply to night and day assembly. Briefings and the aids used to support night assembly plans are more detailed. Aircraft landing direction is emphasized for directional orientation in the landing zone. Emphasis is placed on the use of infrared and visible light sources. Codes are arranged at each light source to differentiate it from others and indicate subordinate unit assembly areas. Visible light sources are used in conjunction with a color scheme, but they must be carefully shielded. More time is needed to establish night assembly aids and this will increase the assembly time.

## **APPENDIX VIII**

### **METHODS FOR DETERMINING TRANSPORT AIRCRAFT REQUIREMENTS**

---

#### **1. General**

*a.* To determine the number of aircraft required for a mission, commanders and staff officers must be familiar with the types and characteristics of the aircraft available for the move. They need to know the—

- (1) Load carrying characteristics. (Dimensions and location of the cargo door and the dimensions of the cargo compartment.)
- (2) Allowable cargo load. (Provided by the transport aviation unit commander based on technical considerations.)
- (3) Number of men, amount of equipment (by type, weight, and dimensions), and the amount of supplies (by weight) to be transported. Nontransportable items are eliminated or replaced with transportable items.

*b.* With this information the aircraft requirements can be determined in three ways: by the weight method, the type load method, or the space method.

#### **2. References**

TM 57-210 and FM 101-10 provide technical data and guidance for computing aircraft requirements.

#### **3. Weight Method**

*a.* The weight method is based on the fact that the total weight to be moved is the determining factor, but it is not accurate enough to compute requirements for units that must transport major items of equipment and maintain tactical integrity.

*b.* Here is a sample application of the weight method:

Weight to be transported = 73,800 lb.

Allowable cargo load, each helicopter = 6,000 lb.

$$\frac{73,800}{6,000} = 12.3 \text{ or } 13 \text{ aircraft required.}$$

#### **4. Type Load Method**

*a.* This method is based on typical combinations of men and cargo within aircraft load limits. It is particularly useful for determining the number of aircraft required for small units. Since the weather, altitude, and other technical factors affect the allowable cargo load of aircraft, type loads that are computed in advance may have to be recomputed for each mission to insure safe flight.

*b.* Here are some sample type loads.

- (1) Light transport aircraft (allowable cargo load—3,000 lb.) :

*Type I.*

12—men.

*Type II.*

1—106-mm rifle.

6 rounds—106-mm rifle ammunition.

9—men.

*Type III.*

1—4.2-inch mortar.

12 rounds—4.2-inch mortar ammunition.

7—men.

*Type IV.*

5—men.

1,800 lb.—cargo.

- (2) Medium transport helicopter (allowable cargo load—6,000 lb.) :

*Type I.*

2— $\frac{1}{4}$ -ton trucks.

3—men.

*Type II.*

1— $\frac{1}{4}$ -ton truck.

1—106-mm rifle (mounted in truck).

12 rounds—106-mm rifle ammunition.

10—men.

*Type III.*

1— $\frac{1}{4}$ -ton truck.

2— $\frac{1}{4}$ -ton trailers (loaded).

4—men.

*Type IV.*

1— $\frac{1}{4}$ -ton truck.

1— $1\frac{1}{4}$ -ton trailer (loaded).

9—men.

*Type V.*

- 1— $\frac{1}{4}$ -ton truck.
- 1— $\frac{1}{4}$ -ton trailer (loaded).
- 1—4.2-inch mortar.
- 6—men.

## 5. Space Method

a. This method combines the best features of the weight and type load methods. This is the most desirable method of computing aircraft requirements at battle group level since the number of spaces required for personnel, vehicles, weapons, and individual items of equipment will not change for each operation or with every change of the allowable cargo load. Thus the majority of the computations remain constant and the overall planning time is shortened.

b. The weight of a fully combat equipped soldier is used as a denominator to convert the weight of major items of equipment and accompanying supplies into a common factor; that is, a space. One space equals the weight of a fully combat equipped soldier (considered to be 240 pounds; the soldier's weight plus the weight of his proportionate share of hand carried supplies and equipment, including crew-served weapons up to, but excluding the 106-mm rifle and the 4.2-inch mortar).

c. Here is a sample application of the space method:

- (1) Convert major items of equipment, such as vehicles, trailers, or heavy weapons into spaces by dividing the weight of each individual item by 240. If two or more items of the same type are to be transported, multiply the spaces required for a single item by the number of items.

<i>Item</i>	<i>Weight ea</i>	<i>Spaces ea</i>	<i>Total spaces</i>
10 $\frac{1}{4}$ -ton trucks	2,625	$\frac{2625}{240} = 10.9 \text{ or } 11^1$	$10 \times 11 = 110$

- (2) Convert additional assault supplies (supplies not carried by the individual soldier) into spaces by dividing their total weight (in pounds) by 240.

$$\frac{5800 \text{ (total weight)}}{240} = 24.16 \text{ or } 24.5 \text{ spaces required.}$$

---

<sup>1</sup> In converting transportation weight, consider only whole or half spaces. Carry fractions to the next higher half or whole space. (10.1 = 10.5; 11.6 = 12)

- (3) To determine the number of spaces that each aircraft can provide, divide the allowable cargo load by 240.

$$\begin{array}{r} 5850 \text{ lb. (allowable cargo load)} \\ \hline 240 \end{array} \quad \text{single aircraft) = 24.3 or } 24.^2$$

- (4) To determine the number of aircraft required, divide the total spaces by the number of spaces for a single aircraft.

$$\begin{array}{r} 2467 \text{ (spaces required)} \\ \hline 24 \text{ (spaces per each aircraft)} \end{array} = 102.7 \text{ or } 103 \text{ aircraft required.}$$

---

<sup>2</sup> In converting allowable cargo loads to spaces, consider only whole or half spaces. Fractions will be reduced to the next lower half or whole space. (22.8 = 22.5; 24.3 = 24)

## **APPENDIX IX**

### **ARMY TRANSPORT AIRCRAFT REQUIREMENTS— BATTLE GROUP**

---

#### **1. General**

The tables in this appendix show the average aircraft requirements for the assault echelon of a battle group in an air-landed operation. They can be used for general planning purposes, but they are not absolute because, in each operation, tactical conditions and differences in the availability of aircraft can compel changes in the composition of the assault echelon.

#### **2. Discussion of Requirement Tables**

*a.* The tables show the followup echelon, including the administrative elements of the battle group and heavy equipment that is transported by surface means, as well as the air-transported assault echelon. The assault echelon includes the minimum essential equipment that can be transported by the light transport airplane and medium transport helicopter. Assault supplies are considered sufficient to sustain the force during the assault phase only. Followup supplies are required to sustain the force for the defense or subsequent phases of the operation.

*b.* The data in the tables are based on the tables of organization and equipment of the battle group and the following assumptions:

- (1) Allowable cargo load of aircraft:

MEDIUM HELICOPTER .....	6,000 lb.
LIGHT HELICOPTER.....	3,000 lb.
LIGHT TRANSPORT AIRPLANE.....	2,300 lb.
- (2) Weight of personnel: 240 lb. each. (Includes proportionate share of hand carried supplies and equipment, including crew-served weapons up to, but excluding the 106-mm rifle and 4.2-inch mortar.)
- (3) Weight of  $\frac{1}{4}$ -ton trucks is computed at basic weight: ready for operation, but without crews.
- (4) Weight of  $\frac{1}{4}$ -ton trailers is computed loaded.
- (5) No supplies are included except those carried by the individual soldier or in the  $\frac{1}{4}$ -ton trailer.

*Table I. Medium and Light Transport Helicopter Requirements.*

Unit	ASSAULT ECHELON (HELICOPTER)							FOLLOWUP ECHELON (SURFACE)									
	Major items of equipment							Major items of equipment									
Pers	Trk $\frac{1}{4}$ -ton	Trk $\frac{1}{4}$ -ton	106-mm mort	4.2"-mort	Radio	Med H-37	Pers	Trk $\frac{1}{2}$ -ton	Trk $\frac{1}{4}$ -ton	Trk $\frac{1}{4}$ -ton	Trk $\frac{1}{2}$ -ton	Tks M48, M41	APC	Trk 2-ton	Trk 5-ton	Trk 2-ton	
Hq & Hq Co-----	198	33	24	2	-----	19 <sup>b</sup>	29	57	112 <sup>c</sup>	17 <sup>d</sup>	9	-----	18 <sup>e</sup>	9	-----	6 <sup>f</sup>	2
Rifle Co's-----	232	4	2	2	-----	1 <sup>g</sup>	12	24	11 <sup>h</sup>	4	4	-----	4	-----	4	2	-----
Mortar Battery-----	119	7	6	6	-----	8	12 <sup>i</sup>	11	21	26 <sup>j</sup>	1	19	-----	16	-----	16	-----
Total Battle Group-----	1245	56	38	8	8	35	88	174	182	18	44	-----	18	41	-----	6	2
												-----	18	41	-----	6	2

<sup>1</sup> Includes 2 $\frac{1}{2}$  T-Wrecker and 2 $\frac{1}{2}$  T-Shop Van.

<sup>2</sup> Includes six 1 $\frac{1}{2}$ T Water Trailers.

<sup>3</sup> Four M48 Tanks and two M41 Tanks.

<sup>4</sup> 10 Pers Sec; 50 S&M Plat; 9  $\frac{3}{4}$ T Drivers; 24 Trk Crews; 4 APC crews; 8, 5-T Trk Drivers; 7 Cooks.

<sup>5</sup> ANGR-C-7, 1; ANGR-C-8, 1; VRC-10, 4; VRC-15, 2; VRC-18, 5; VRC-3, 6; Average weight of radio 240 lbs.

<sup>6</sup>  $\frac{3}{4}$ -T Truck Drivers; 7 Cooks.

<sup>7</sup> VRC-18 Radio.

<sup>8</sup> AN/VRC-9, 9; VRC-10, 2; VRC-30, 1.

<sup>9</sup> AN/VRC-9, 9; VRC-10, 2; VRC-30, 1. 16 Cooks; one 2 $\frac{1}{2}$ -T Trk Driver; nineteen  $\frac{3}{4}$ -T Truck Drivers.

*Table II. Light Transport Airplane Requirements.*

ASSAULT ECHELON (AIRPLANE)										FOLLOWUP ECHELON (SURFACE)							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Unit	Major items of equipment										Major items of equipment						
	Pers	4.2" mort	106 mm rifle	Radios	Aircraft requirements	Pers	Trk $\frac{2}{3}$ ton	Trk $\frac{3}{4}$ ton	Trk $\frac{1}{4}$ -ton	Trk $\frac{3}{4}$ -ton	Trk $\frac{1}{4}$ -ton	Tks M48, M41	APC	Trk 5-ton	Trk 2-ton		
Hq & Hq Co	165	2 <sup>1</sup>	17	145 <sup>4</sup>	171	9	33	18 <sup>2</sup>	9	24	6 <sup>3</sup>	2	2	4	2	2	
Rifle Co's	228	2	23	15 <sup>5</sup>	---	4	4	4	2	2	6	6	6	6	6	6	
Mort Btry	112	8	12	33 <sup>6</sup>	1	19	7	7	7	16	16	16	16	16	16	16	
Total BG	1189	8	8	121	238	18	44	56	18	41	38	6	2	4	2	2	

<sup>1</sup> Includes 2½-T Wrecker and 2½-T Shop Van.

<sup>2</sup> Includes six 1½-T Water Trailers.

<sup>3</sup> Four M-48 and two M41 Tanks.

<sup>4</sup> 10 Pers Sec; 50 S&M Plat; 9 ¼-T Drivers; 24 Trk Crews; 4 APC crews; 8 5-T drivers; 7 Cooks.

<sup>5</sup> ¾-T and ½-T Truck Drivers; 7 Cooks.

<sup>6</sup> 6 Cooks; one 2½-T Driver; nineteen ¾-T Drivers; seven ½-T Drivers.

<sup>7</sup> RT-68 ground mounted (Set No. 1); BG can ground mount 2.

## APPENDIX X

### STANDING OPERATING PROCEDURE

(Classification)

87th Inf  
APO #10  
c/o PM  
1 Jan 1955

Annex F (Air Landed Operations) to 1st BG, 87th Inf SOP.

#### 1. GENERAL.

a. Purpose. This annex prescribes the organization and procedures to be followed in preparing and executing air landed operations to facilitate the planning, coordination, and control necessary in the tactical employment of Army transport aircraft. Only the procedures peculiar to this type operation are included; otherwise, basic SOP applies.

b. Unit Procedures. Subordinate units issue SOP to conform.

#### 2. PERSONNEL.

##### a. Strengths, Records, and Reports.

- (1) As soon as practicable after receiving warning order units submit report, by company, of number of men in assault echelon and in follow-up echelon.
- (2) Flight manifests will be prepared for each aircraft in operations involving a company or larger unit and one copy will be picked up by a representative of this headquarters prior to takeoff. In operations involving smaller units, personnel accounting is the responsibility of executing units.
- (3) Strength message is submitted as soon as practicable after landing.

##### b. Discipline, Law, and Order.

- (1) Straggler control is the responsibility of subordinate units of the assault echelon initially on landing.
- (2) Personnel landed in other than assigned zones within the objective area join the first friendly unit encountered. Rejoin parent unit when ordered by this headquarters.
- (3) Stragglers integrated from other units are reported as soon as practicable to this headquarters by name and organization.

c. Prisoners of War. Only prisoners designated by intelligence officer are evacuated from objective area by air prior to linkup.

d. Graves Registration. Deceased personnel are not evacuated from objective area until linkup.

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e. Interior Management. Personnel at old command post, upon closing, join followup echelon.

f. Civilian Personnel. Indigenous personnel in objective area are utilized upon approval this headquarters.

3. INTELLIGENCE.

a. Weather.

- (1) Long-range forecast immediately after receipt of mission.
- {2} Short-range forecasts up to takeoff time.
- {3} Weather minimums established by this headquarters. Operations will not be executed if weather exceeds weather minimums unless specific instructions are issued by this headquarters.

b. Terrain.

- (1) Maps and air photos will be obtained and disseminated to company level in this priority:
  - (a) Large-scale map coverage of objective area.
  - (b) Large-scale, low-oblique air photos of objective area with emphasis on landing zones and objectives.
  - (c) Appropriate scale map coverage of terrain in flight corridors.
- (2) Maximum use of terrain models (sand tables) for briefings.

c. Counterintelligence.

- (1) All planning conducted in area with maximum security.
- (2) No marked maps, photos, sketches, or combat orders carried into objective area with assault echelon.

d. Escape and Evasion.

- (1) Personnel in aircraft forced to land in terrain between current line of contact and objective area will take the following action:
  - (a) If practicable, move overland immediately to join friendly units.
  - (b) If not practicable to move overland to join friendly units, mark a suitable landing site in the vicinity of downed aircraft for evacuation by aircraft, if the enemy situation and terrain permit.
  - (c) If (a) and (b) above are precluded by pursuing enemy, evade capture and attempt to join friendly units by infiltration. If the situation demands that casualties be

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abandoned, provide them with available supplies and conceal them. Continuous attempts will be made to locate suitable sites for evacuation by aircraft.

4. OPERATIONS.

a. Planning.

- (1) Planning for an air landed mission will be initiated immediately on receipt of a warning order and will continue until the operation is executed or canceled.
- (2) Insofar as practicable, planning at all levels concerned will be conducted concurrently.
- (3) Operational planning will be completed in the following sequence:
  - (a) Ground tactical plan.
  - (b) Landing plan.
  - (c) Air movement plan.
  - (d) Loading plan.
- (4) Planning involving a battle group will be centralized at this headquarters. Plans for operations involving a smaller force will be coordinated and approved by this headquarters.
- (5) Except when accomplished by higher headquarters, this headquarters will accomplish the following planning for all air landed operations (subordinate units participate in planning):
  - (a) Determine the size and composition of the force required to execute the ground tactical plan.
  - (b) Designate landing zones that are available or will be used by participating units.
  - (c) Allocate transport aircraft for the operation and notify subordinate units of allowable cargo load.
  - (d) Designate approach, return, and alternate routes and route corridors.
  - (e) Prescribe altitudes and formations to be flown.
  - (f) Specify movement control to be exercised, including a movement schedule (air movement table).
  - (g) Designate loading areas to be used by participating units.
- (6) Transport aviation unit commanders will assist transported units in planning movement.

b. Training and Rehearsals.

- (1) Training in tactical employment of transport aircraft will be integrated into appropriate training phases. Request for transport aircraft to this headquarters one week in ad-

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- vance. (See current master training program.)
- (2) Prior to executing an air landed operation, participating personnel will receive instruction in the following:
- (a) Conduct of air landed operations.
  - (b) Indoctrination in psychological problems inherent in air landed operations.
  - (c) Familiarization with loading, lashing, and unloading of type aircraft to be employed. (Aircraft requested by this headquarters.)
  - (d) Safety procedures during loading, flight, and unloading.
  - (e) Assembly techniques.
  - (f) Escape and evasion tactics.
- (3) Situation permitting, rehearsals will be conducted by participating units on terrain similar to proposed objective area. Maximum use will be made of sand tables and terrain models in conjunction with large-scale oblique photos and maps of the objective area.

c. Loading.

- (1) Loading areas will be designated by this headquarters.
- (2) Assembly areas and loading sites will be organized by subordinate units.
- (3) Loading area control group will be organized for each loading area. Group to consist of a loading control officer and enough personnel to control loading.
- (4) Loading control points will be organized to make final check of individual helicopter loads and control their movement from assembly areas to loading sites.
- (5) Air loading tables will be prepared (by flight serial) at battle group level. A copy of air loading tables will be furnished supporting transport aviation units.
- (6) Flight serials will be broken down into flight units as required by the movement, landing, and ground tactical plans.
- (7) Aircraft will arrive at designated loading sites, by flight units, at the latest possible time. Individual aircraft within flight units will be marked according to air loading tables prior to arrival. Marking is the responsibility of the transport aviation unit.

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- (8) Supporting transport aviation units will assist in the planning for and execution of loading by providing technical advice and supervision.
- (9) Movement to loading site will be made by aircraft loads under supervision of loading control officer.
- (10) An accurate troop manifest for each aircraft will be given to the loading control representative at each loading site.
- (11) It is the pilot's responsibility to see that the aircraft is safe for flight. The troop commander will supervise its loading.
- (12) Cargo or equipment to be transported externally will be secured in cargo nets or slung in pallets for transit by use of the cargo sling on the helicopter, or rigged for attachment to bomb shackles on fixed-wing aircraft. Attachment of these loads to the aircraft will be accomplished by personnel other than those listed as passengers.
- (13) When loading personnel or cargo into an aircraft, the troop commander will insure that:
  - (a) All of the safety measures prescribed for movement in and about the particular type aircraft are observed.
  - (b) In loading helicopters all personnel will approach the helicopter from the direction of the nose so that the pilot can see them approaching.
  - (c) In loading helicopters no persons will go near the tail rotor.
  - (d) In loading helicopters all personnel and equipment will be kept well below the arc of the main rotor.
  - (e) In loading fixed-wing aircraft, personnel will approach from the rear.
- (14) When loading, a designated individual will board the aircraft prior to placing any equipment in it, to assist in receiving equipment into the cargo compartment.
- (15) After all equipment and personnel have been loaded, the troop commander will determine that:
  - (a) The equipment and cargo are in their proper place.
  - (b) The cargo or equipment required to be lashed is properly secured.

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- (c) Each man is seated and has his safety belt fastened.
  - (d) Cargo compartment door is closed and locked, or safety strap across door is properly fastened, as directed for the operation.
  - (16) Briefing on emergency signals will be conducted:
    - (a) Initially in the ready area by the troop commander.
    - (b) Final briefing by aviation unit representative prior to loading times.
  - (17) When the troop commander has checked to insure that all cargo and personnel are secured, he will notify the pilot verbally.
  - (18) During flight the pilot is in command of the aircraft. During flight the troop commander will insure that:
    - (a) Cargo lashings (if applicable) are checked frequently to determine that cargo is properly secured.
    - (b) The troops keep their safety belts secured and do not smoke unless authorized.
    - (c) The troops stay seated and do not move around in the cargo compartment without proper authorization.
- d. Movement Control.
- (1) This headquarters will control the air movement to the objective area.
  - (2) When available, pathfinder teams may be employed to assist in movement control along flight routes and within landing zones.
  - (3) Air control points (minimum of an IP and RP) will be designated to assist movement control.

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- (4) Time of takeoff, arrival at air control points, and landing, will be as specified in air movement tables, insofar as possible. Inability to comply with specified control times to be reported by flight serial commanders.
- e. Unloading.
- (1) The pilot will notify the troop commander when the aircraft is four minutes out from the landing site. The troop commander will then alert members of the unit to be prepared to unload.
- (2) In helicopterborne operations, no movement will be made in the cargo compartment until clearance has been obtained from the pilot. After the pilot gives the clearance signal with the alarm bell, the commander of the troops has the troops release their safety belts and has the cargo unashed if applicable. He will then open the cargo door and have the troops and equipment unloaded in reverse order from that in which the aircraft was loaded. The first one or more men to unload will assist in unloading the supplies as required by the troop commander.
- (3) After all troops and cargo have been unloaded from the aircraft, a man designated by the troop commander will close the cargo compartment door and will signal the pilot by use of hand and arm signals (or lights during darkness) that the cargo compartment is empty.
- (4) The troop commander will insure that members of his unit will clear the unloading site in a safe, expeditious manner to prevent exposing personnel to unnecessary danger and to prevent any delay in other takeoff or landing procedures.

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5. LOGISTICS

a. Supply.

- (1) Assault supplies (all classes). Prescribed load announced by this headquarters for each operation.
- (2) Followup supplies (all classes). Automatic and on-call, as required, each operation.
- (3) Salvage.
  - (a) Expedite recovery of aerial delivery containers, parachutes, cargo nets, and pallets. Commanders insure against damage or destruction.
  - (b) Units in airhead establish salvage collecting points when appropriate and practicable.
  - (c) Salvage reported to this headquarters for disposition instructions.
- (4) Captured materiel. Captured materiel may be used by capturing units. Captured munitions and fuel may be used on approval this headquarters.

b. Evacuation and Hospitalization. Evacuation by air until linkup or withdrawal.

c. Transportation.

- (1) Motor:
  - (a) Allocation of accompanying organic transport by this headquarters.
  - (b) Maximum use of captured vehicles to meet motor transportation requirements.
- (2) Aircraft: allocation of supporting transport aircraft by this headquarters.

d. Service.

- (1) Followup echelon will support assault echelon in final maintenance and inspection of equipment to maximum extent possible.
- (2) When required, technical service teams will be provided participating units on request.
- (3) On linkup, nearest supporting units provide necessary services.

e. Procedures Prior to Loading.

- (1) Supply: Assault echelon --
  - (a) Supplies issued in assembly areas.
  - (b) Small stock of critical TOE items in assembly area(s) for emergency replacement.
- (2) Evacuation: Personnel evacuated after being briefed on operation will be evacuated under guard.

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- (3) Transportation: Priorities established for each operation.
- (4) Miscellaneous:
  - (a) Followup echelon is responsible for security of loading area(s). Augmentation by this headquarters when required.
  - (b) Followup supplies procured, palletized as required, and loaded by Supply & Maintenance Plat, Headquarters Company.

Acknowledge

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## GLOSSARY

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*Accompanying (assault) supplies*—All classes of supplies that are carried by units being transported.

*Air control point*—An easily identifiable point to provide necessary control during air movement.

*Air evacuation*—The employment of aircraft to evacuate personnel, equipment, or supplies because they are disabled or isolated, or because the tactical mission requires it (e.g., raid type mission).

*Airhead*—An area in hostile or threatened territory which, when seized and held, insures the continuous air-landing of troops and materiel and provides maneuver space necessary for projected operations.

*Air-landed*—Moved by air and unloaded after the aircraft has landed.

*Allowable cargo load*—The weight in pounds of transported troops and materiel which may be safely loaded into or suspended from an aircraft.

*Approach route*—A designated route flown by aircraft formations from the loading area to the objective area.

*Assault echelon*—The personnel and equipment of a unit, essential to accomplish the mission, air-transported into the objective area.

*Center of gravity*—An imaginary point in a body where the resultant of all forces of gravity is concentrated; point at which a body is balanced.

*Corridor*—An airlane assigned to certain aircraft formations to prevent their being attacked by friendly air, ground, or naval forces.

*Drop zone*—A specified area upon which airborne troops, equipment, and supplies are dropped by parachute, or on which supplies and equipment may be delivered by free fall.

*Echelonnement*—Subdivision of personnel and equipment into assault, followup, and rear echelons, components, or groups.

*External load*—Cargo attached externally to aircraft by containers, nets, slings, or pallets.

*Flight serial*—A formation of one or more flight units under control of the formation commander and separated from other formations by time and space.

*Flight unit*—Two or more aircraft grouped under a flight unit leader.

*Followup echelon*—That portion of a force used in air-landed operation, excluding the rear echelon, which is not initially brought into combat, but which joins the assault echelon as soon as possible.

*Helicopterborne force*—A force composed of transport helicopter units and the units to be transported for the purpose of executing a tactical mission.

*Helicopterborne operation*—An operation involving the movement of a unit by helicopter transportation into an objective area for ground combat.

*Hovering*—Maintaining a fixed position in space over a spot on the ground.

*Initial point*—An air control point near the loading area at which aircraft formations are coordinated to move over the approach route.

*Landing site*—A designated area within a landing zone where one or more helicopters can land and take off.

*Landing strip*—A designated area suitable for the landing and takeoff of fixed-wing aircraft.

*Landing zone*—A specified zone, consisting of one or more landing sites and landing strips, and/or drop zones within which all or part of an air-transported unit can be landed.

*Loading area*—A specified area in which loading sites and assembly areas are located, and from which the movement of units, equipment, and supplies by aircraft is initiated.

*Loading site*—A designated area within a loading area where aircraft are parked, readied for loading, and loaded with personnel, equipment, and supplies.

*Objective area*—A defined geographical area within which is located the objective(s) to be seized or reached by an air-transported unit. The area includes the airhead if one is designated for the operation.

*Pathfinders*—Personnel that establish and operate navigation aids for the purpose of guiding aircraft to landing zones.

*Payload*—The weight of the usable fuel plus the cargo an aircraft can carry.

*Pickup site*—A designated point where a helicopter may pick up personnel, equipment, and supplies without landing.

*Radius of action*—Maximum distance an aircraft can travel from its base along a given course with a normal load and return without refueling, allowing for all safety and operating factors.

*Range*—The maximum distance that an aircraft can safely travel without refueling.

*Rear echelon*—That portion of a force which is left a considerable distance behind the line of contact to perform administrative and supply functions which cannot be accomplished effectively in the forward area.

*Reconnaissance and security line*—The location of a series of outposts, roadblocks, observation posts, and reconnaissance detachments established beyond the airhead line. It is the security echelon of the transported unit.

*Release point*—The final air control point on the approach route from which aircraft proceed to their assigned landing zones.

*Return route*—A designated route flown by aircraft returning from an objective area.

*Space*—One space equals the weight of a fully combat equipped soldier (240 pounds).

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[AG 373 (5 Feb 58)]

By Order of *Wilber M. Brucker*, Secretary of the Army:

MAXWELL D. TAYLOR  
*General, United States Army,*  
*Chief of Staff.*

Official:

HERBERT M. JONES  
*Major General, United States Army,*  
*The Adjutant General.*

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*NG:* State AG; units—same as Active Army.

*USAR:* Same as Active Army.

For explanation of abbreviations used, see AR 320-50.